

## **Conservation of Billfish in South Carolina**

KAY DAVY, SHELLY SMITH-KNIGHT, THOMAS DUPRE and DONALD  
HAMMOND

*Office of Fisheries Management, Marine Resources Division  
South Carolina Department of Natural Resources  
Charleston, South Carolina 29422 USA*

### **ABSTRACT**

Long before billfish declines started making headlines, South Carolina billfish anglers began voluntarily releasing their fish. With a release rate of 26.9% in 1987, then Governor Carroll Campbell, feeling more could be done, established the Governor's Cup Billfishing Series. The tournament series was designed to increase coastal tourism, promote the state's billfish tournament enterprise and at the same time encourage the conservation of billfish. Bearing in mind that tournament caught billfish accounted for more than half of the fish killed, many thought the concept would not work. Fortunately, a federal minimum size limit was established the same year that the Governor's Cup Billfishing Series began. Over the last 15 years, the tournament release rate has risen 750%. In addition, the Series stipulated that billfish must be tagged before release to count within the tournament series. In an average year, 95% of fish released off South Carolina bear fish tags. Within the Series, anglers are not limited to the source of their billfish tags. However, since 1974, South Carolina has been providing anglers with free tag kits. Before 1988, only 230 blue marlin, sailfish and white marlin had been tagged by participating anglers. With the institution of the federal size limits on these species and the introduction of the Governor's Cup Billfishing Series, anglers began tagging more billfish. Since 1989, 1727 billfish have been tagged in South Carolina's Marine Game Fish Tagging Program. Over 20 tag recoveries have resulted from fish tagged within this program. Recoveries have occurred as far south as 750 nautical miles east of Brazil, (this was the first documented crossing of the equator by an Atlantic Blue Marlin), and as far north as Vetch's Canyon, Rhode Island. Other long distance recaptures have occurred off Venezuela, Cuba and the Abacos.

**KEY WORDS:** Billfish, Conservation, Tagging

### **INTRODUCTION**

Cooperative fish tagging in South Carolina is a product of the efforts of anglers wanting to participate in fisheries conservation. With the public becoming aware of the potential for over-exploitation and the need for management of some fisheries, the South Carolina Marine Game Fish Tagging Program (MGFTP) was initiated. Begun in 1974, over 10,000 anglers have

participated by tagging and releasing over 95,000 of their fish. Their growing concern, coupled with the introduction of minimum size limits has contributed to the increased participation in tagging. In addition, the tagging of billfish has been enhanced by the inception of the South Carolina Governor's Cup Billfishing Series (GCBS). In the GCBS, points are awarded to boats tagging and releasing their billfish. To further their conservation efforts, two inches have been added to the federal minimum size limit for billfish to qualify in the Series. Boats bringing undersize billfish to the dock are penalized. All tournaments participating in the GCBS adopted these guidelines to be consistent with the goal of the GCBS.

The MGFTP has been successful in gathering tag release and recovery information currently being used in the management of several marine fish species. While the program has been collecting data for fisheries management, it also has been promoting conservation through catch and release. Over the years, the mindset of many anglers in South Carolina has been changed from flaunting fish at the docks to flying a tag and release flag. Today, if an angler brings an excess of fish to the dock, he should be prepared to suffer his fellow anglers' wrath.

The MGFTP recognizes several offshore as well as inshore species eligible for tagging. The focus of this report is on the offshore tagging activity of blue marlin (*Makaira nigricans*), white marlin (*Tetrapturus albidus*) and sailfish (*Istiophorus platypterus*). In this program, free tagging kits are provided to anglers at their request.

As an added incentive to report their catches, whether tagged, killed or released, a billfish certificate is offered to anglers documenting their catch. This helps the Department of Natural Resources document the total numbers of fish caught off South Carolina's coast.

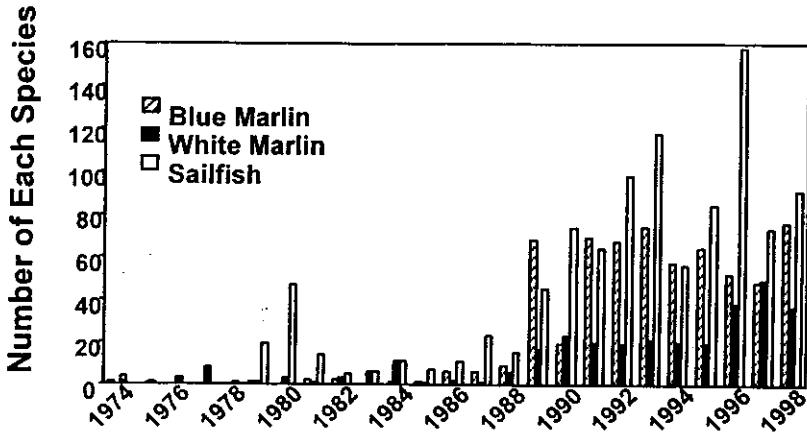
## RESULTS

As the billfish sportfishery increased in popularity in the early eighties, the tag and release of billfish increased correspondingly (Figure 1). Prior to 1989, billfish were only tagged outside of tournaments. The overall release rate during 1987 was 26.9%. With the inception of the GCBS in 1989, the tagging rate within tournaments steadily increased. Comparing the release rate from before the Series began with the current rate shows a remarkable 750% increase. Sailfish made up the highest percentage of billfish releases, followed by white marlin then blue marlin (Figures 2, 3 and 4).

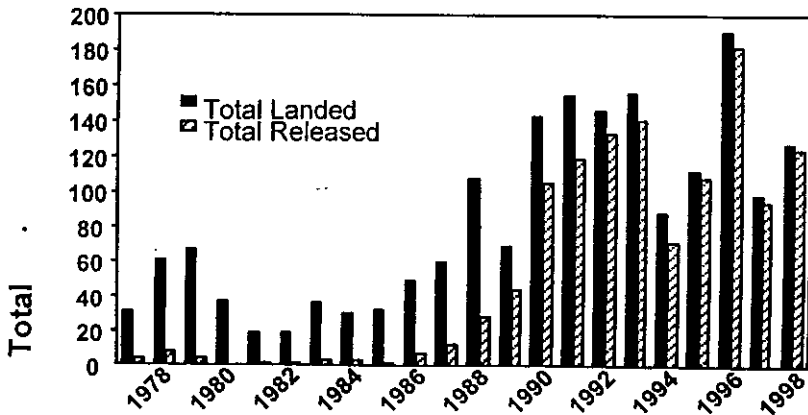
The release rate of billfish caught outside of tournaments has also increased dramatically. In 1998, 99.2% of billfish caught while non-tournament fishing were released. The majority of these were also tagged. The adoption of the

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federal minimum size limits played a major part in the release of many undersize fish. However, many billfish of legal size were also released.



**Figure 1.** Billfish tagged in the South Carolina Marine Gamefish Tagging Program



**Figure 2.** Sailfish caught off South Carolina

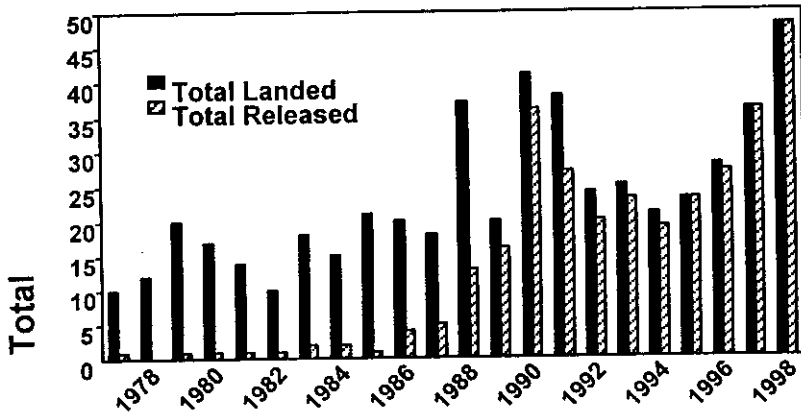


Figure 3. White marlin caught off South Carolina

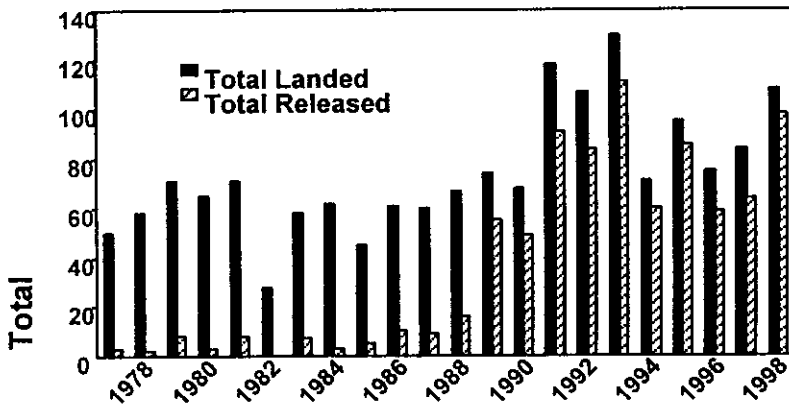


Figure 4. Blue marlin caught off South Carolina

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Within the MGFTP, 623 blue marlin, 298 white marlin and 1036 sailfish have been tagged. Over 88% of these fish have been tagged since 1989 when the GCBS and the federal minimum size limits first went into effect. Of the total number of fish tagged and released since 1989, 56% were above the legal minimum size. More legal size sailfish (73%) were tagged and released, followed by white marlin (52.9%) and blue marlin (27.9%) as shown in Figures 5,6 and 7.

In addition to tagging activity off South Carolina, billfish were also tagged by South Carolina anglers while fishing near St. Thomas, off Virginia, North Carolina, Florida, the Bahamas, Cozumel and Cancun, Mexico. Due to logistics, the highest concentration of tagging obviously occurred off South Carolina's coast. Natural segregation of different species resulted in aggregations of blue marlin being tagged off St. Thomas, sailfish off the Yucatan Peninsula and white marlin off North Carolina and Virginia (Figures 8, 9 and 10). The tagging off South Carolina occurred during April through September (Figures 11,12,13 and 14). Little or no tagging occurred off South Carolina during November through February (Figures 15 and 16). Sailfish were tagged off Florida and the Yucatan Peninsula during the late fall, winter and early spring months as shown in Figure 17. Blue marlin were tagged off St. Thomas and in the Bahama Islands in late July and August and in the upper Bahama Islands during March through early May (Figure 18). White marlin were tagged off North Carolina and Virginia during July-August and in the upper Bahamas and Yucatan during March through early May (Figure 19).

All of the tag recoveries in this program occurred within three years of tagging. Fifty-six percent of sailfish, 50% of white marlin and 33% of blue marlin were recaptured during the first year after tagging. The shortest and longest times at liberty were for sailfish, 27 days and 863 days. Days at liberty for white marlin ranged from 39 to 427 days and blue marlin were at large from 47 to 725 days.

Even though this program is much smaller than some of the other tagging programs targeting billfish, the recovery rates are comparable. White marlin has the highest recapture rate with 1.34%, followed by sailfish with 0.97% and blue marlin with 0.96%. In earlier years, sailfish had maintained the highest recovery rate with 1.5% or higher.

Recaptures of tagged billfish have occurred as far north as Vetch's Canyon, Rhode Island, as far south and east as offshore Natal, Brazil and as far west as Grand Isle, Louisiana as shown in figure 20. Half of the recaptures occurred off South Florida (Figure 21). All of the recaptured blue marlin and all but one of the white marlin were originally tagged off South Carolina. One white marlin had been tagged off Oregon Inlet, North Carolina. Three of the recaptured sailfish were tagged off Florida. Recreational anglers reported all but two of the

recaptures. A Florida based longline vessel reported one blue marlin and the other was reported caught by a Japanese longline vessel. The Florida longline vessel reported releasing the fish without the tag. Two blue marlin caught by recreational anglers were released again with National Marine Fisheries Service tags and a third was released with a Billfish Foundation tag.

Recaptured billfish are yielding interesting information. One of the blue marlin that was retagged had been prematurely released off South Carolina with a double hook rig still implanted in its bill. When it was recaptured 47 days later, the hooks had been lost and the fish was reported to be in excellent condition. A white marlin was reported as being in "poor" condition when released after tagging. The angler stated that they had to "revive" the fish for 30 minutes or more before releasing. The marlin was recaptured 39 days later and 740 nautical miles (1370 kilometers) from its tag and release site. The MGFTP gained international recognition from the recapture of a blue marlin that was tagged off Charleston, South Carolina and recovered 750 nautical miles (1,389 kilometers) east of Natal, Brazil in January 1993. The minimum distance traveled by this fish was 4,300 nautical miles (7,962 kilometers) in 243 days. The recapture of this blue marlin was the first documented evidence of any billfish making a transequatorial crossing. The Japanese longline vessel reported the tagged blue marlin as being a 264 pound (120 kilogram) male.

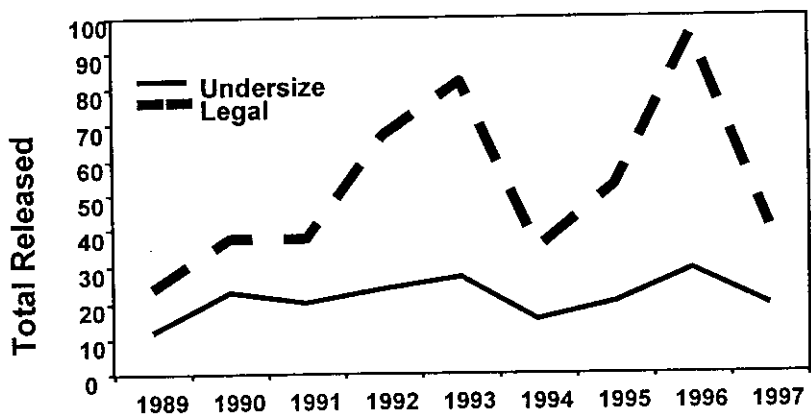


Figure 5. Lengths of released sailfish

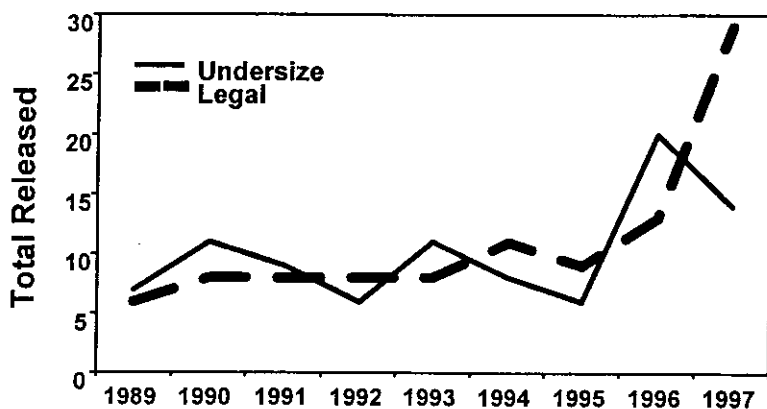


Figure 6. Lengths of released white marlin

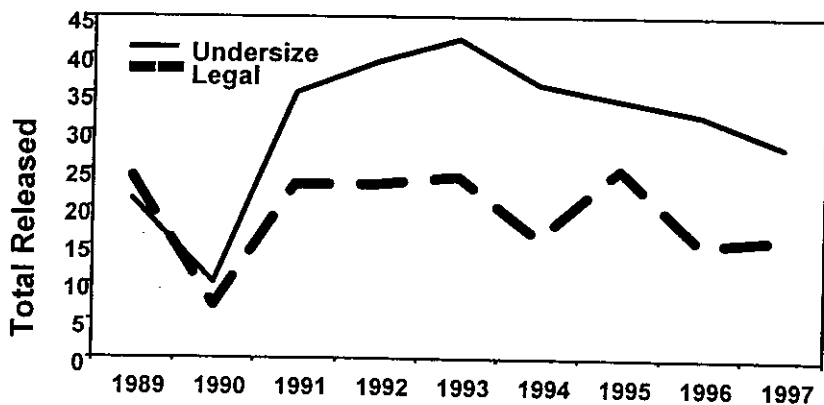


Figure 7. Lengths of released blue marlin

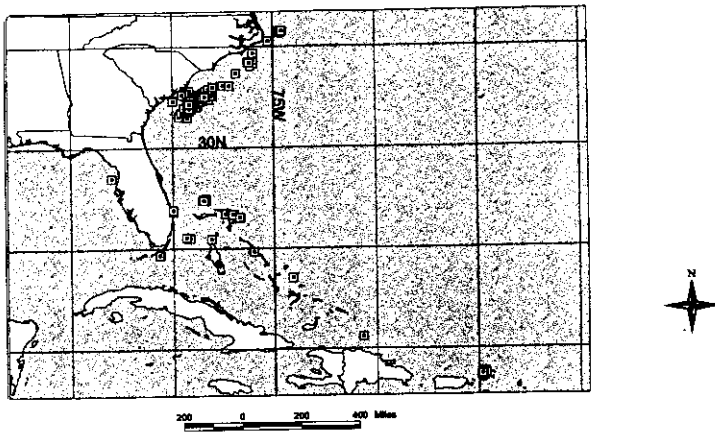


Figure 8. Blue marline tagging locations from 1974 - 1998

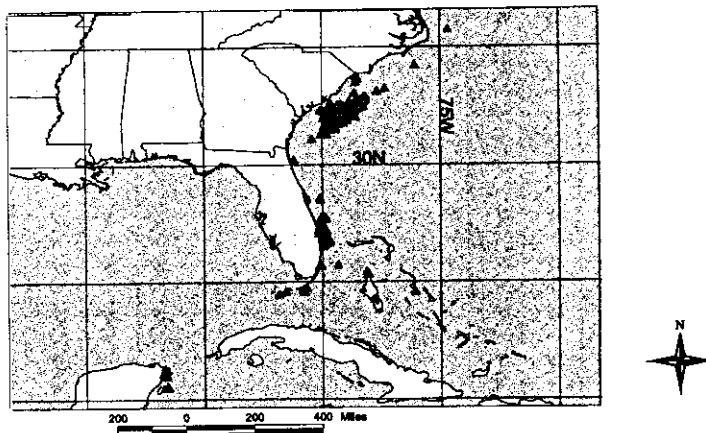
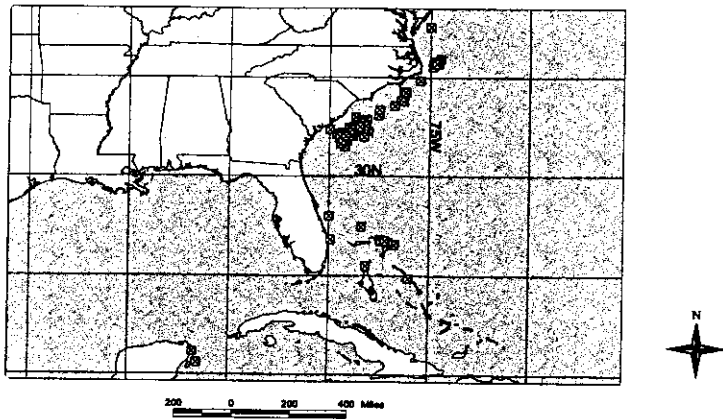
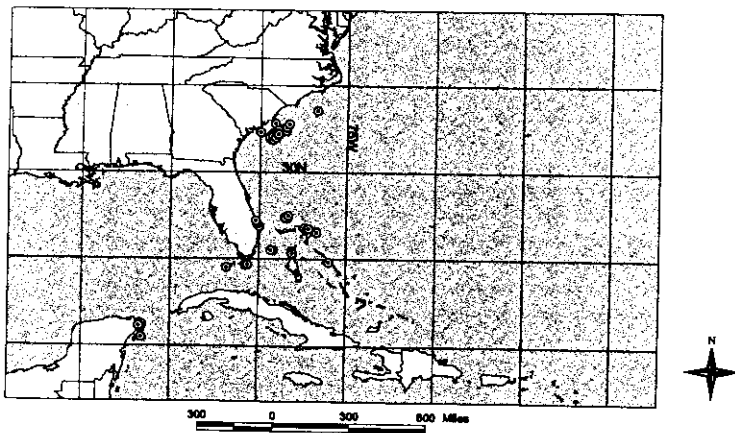


Figure 9. Sailfish tagging locations from 1974 - 1998

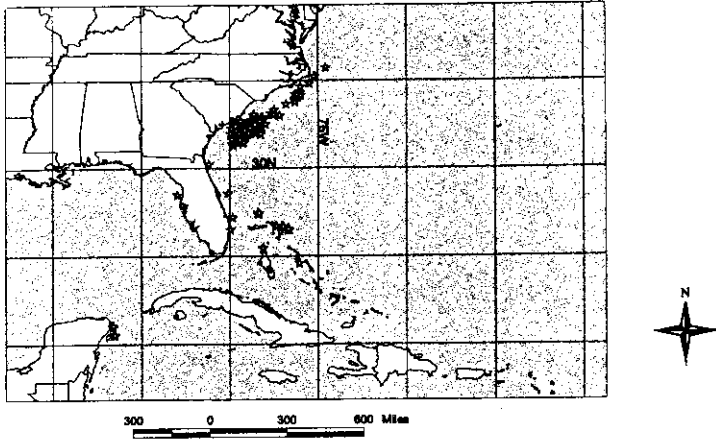




**Figure 10. White marlin tagging locations from 1974 - 1998**



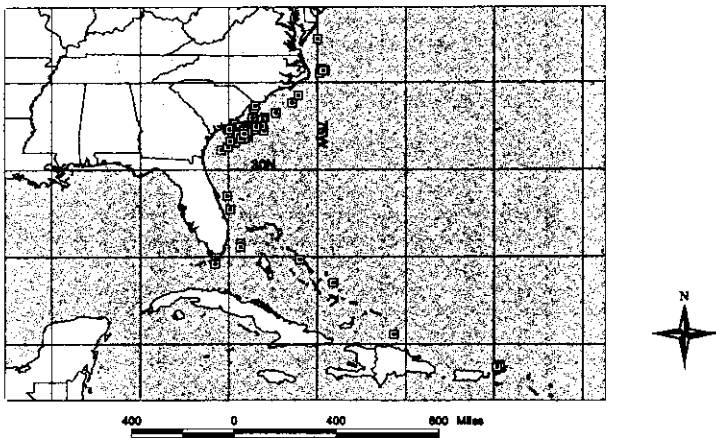
**Figure 11. March - April billfish tagging locations from 1974 - 1998**



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**Figure 12.** May = June billfish tagging locations from 1974 - 1998

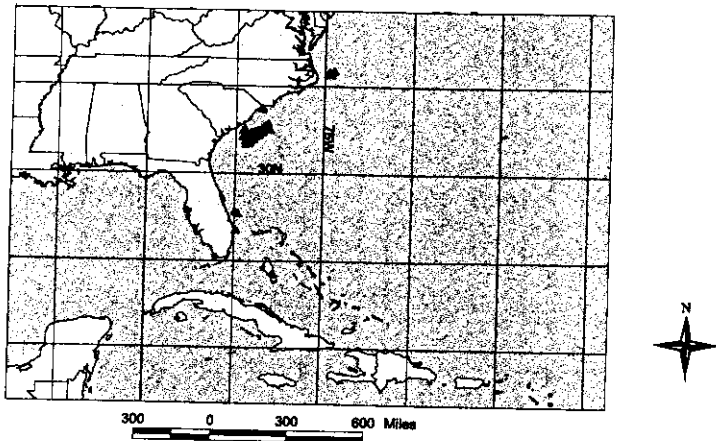
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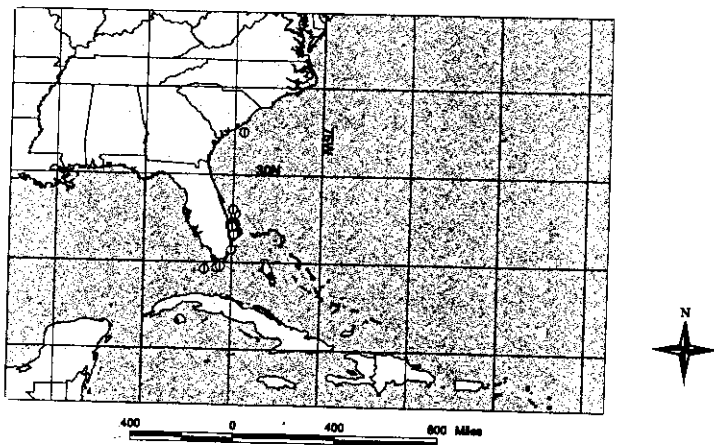
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**Figure 13.** July - August billfish tagging locations from 1974 - 1998

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**Figure 14.** September - October billfish tagging locations from 1974 - 1998



**Figure 15.** November - December billfish tagging locations from 1974 - 1998

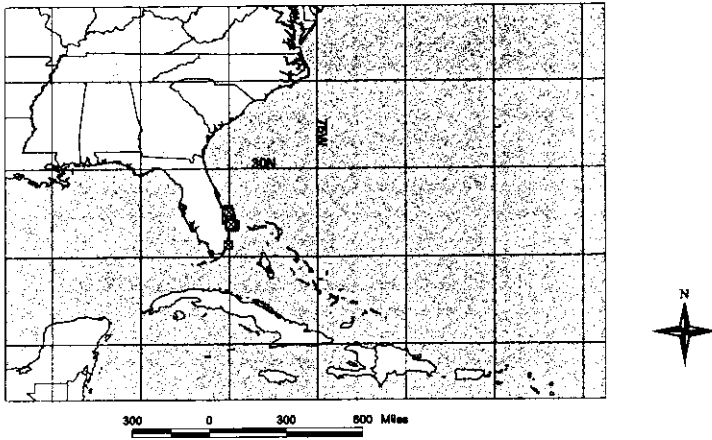


Figure 16. January - February billfish tagging locations from 1974 - 1998

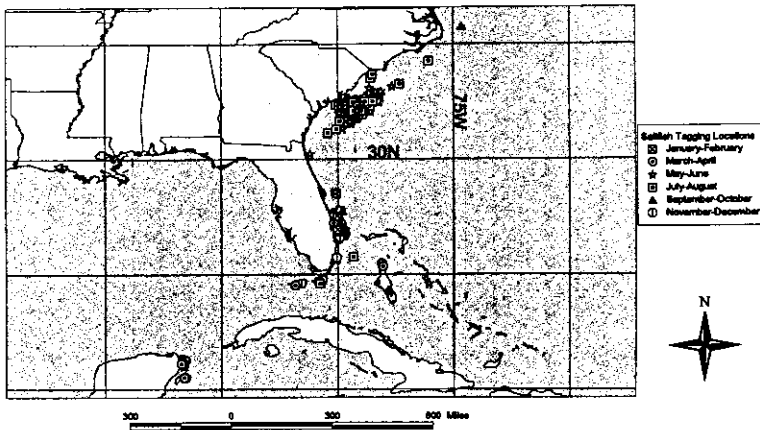
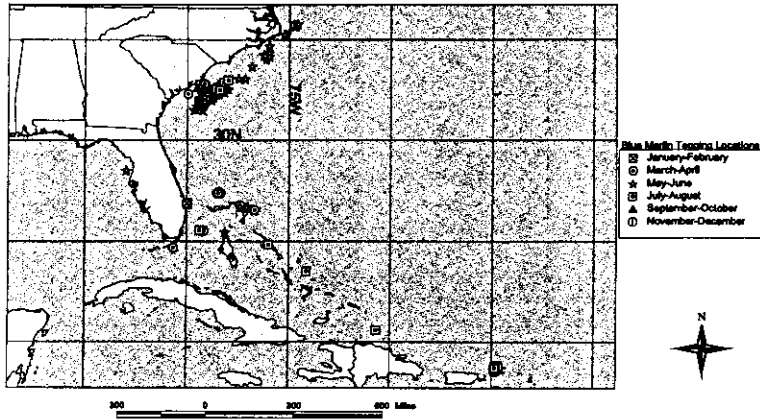
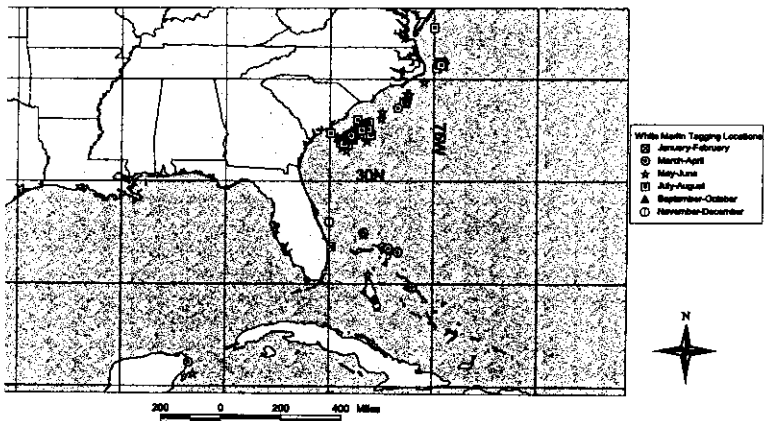


Figure 17. Bimonthly saifish tagging locations from 1974 - 1998



**Figure 18.** Bimonthly blue marlin tagging locations from 1974 - 1998



**Figure 19.** Bimonthly white marlin tagging locations from 1974 - 1998

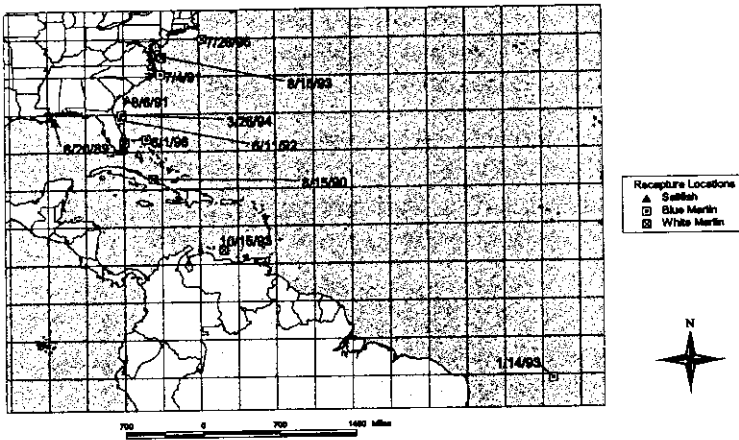


Figure 20. Billfish recapture locations from 1974 - 1998

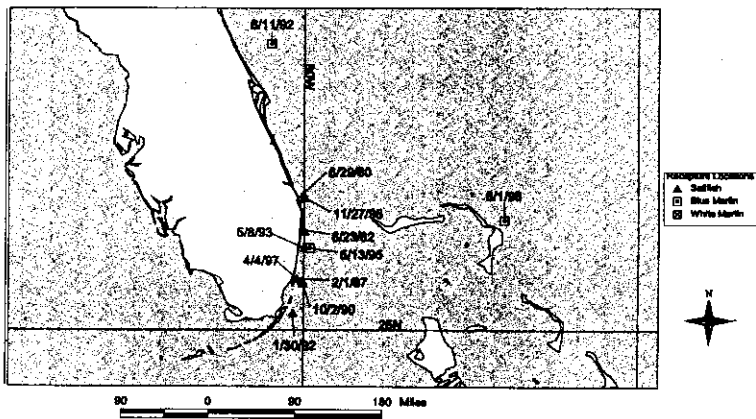


Figure 21. South Florida billfish recapture locations from 1974 - 1998

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### DISCUSSION

While most of the billfish tagged within the MGFTP were tagged off the South Carolina coast, the recapture locations indicate that billfish travel extensively and that they do survive after being released. Several billfish were documented having traveled great distances in just a few days. Beyond surviving release, billfish appear to be capable of dislodging hooks used by recreational anglers in a short amount of time. Handled carefully and treated with respect, most billfish will survive catch and release.

### ACKNOWLEDGMENTS

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