



  
The **BILLFISH**  
FOUNDATION  
**2021**  
CONSERVATION  
RECORD

*Photo by Casa Vieja Lodge*







*Photo by Samuel Urbain*

## **ESTABLISHED IN 1990,**

The Billfish Foundation's Tag and Release Program has generated the largest private billfish tagging data resource in the world, which remains the cornerstone of TBF's conservation and advocacy programs. With TBF receiving close to 15,000 tag and release records annually from across the globe, our database contains nearly 280,000 records in total, all contributing to what is known about billfish.





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## WELCOME MESSAGE

Dear TBF Friends,

We hope you find the latest edition of our Conservation Record interesting as it provides you with a snapshot of the nearly 280,000 data records stored in The Billfish Foundation's tag and release database, the world's largest private billfish tagging data resource. Our program rests on the willingness of you - anglers, captains, and mates - to purchase, deploy, and report tag and recapture data. Needless to say, our Tag and Release Program continues to remain the cornerstone of our organization thanks to your support.

Before TBF launched our tagging program, we were the first sportfishing conservation organization to advance billfish stock assessments. It was during that data-dependent process that it became clear that more billfish data was needed to advance billfish science. It was then that we called on you for help. Since our program's inception in 1990, most of what was known about billfish came from tagging and recapture data. Today, traditional tagging is now augmented by satellite tagging data, with each collecting different types of data, both of which are important to learning more about billfish.

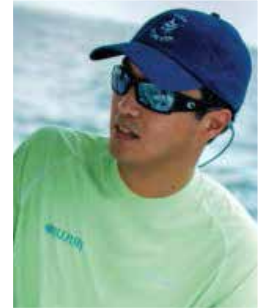
To streamline the reporting process, don't forget to use our free online application ([www.tagbillfish.org](http://www.tagbillfish.org)). This is a tool that not only allows you to enter your own data quickly, but also view any data in which you are associated and even share it on social media! With this new application, we hope this will increase data accuracy, improve reporting timeliness, and incentivize more anglers to tag and report! Remember that all records will count toward TBF's annual tag and release competitions, which have competitive categories for captains and mates, anglers, female anglers, and youth anglers.

Lastly, if you are looking for additional ways to help TBF, please join us at one of our upcoming events such as our annual fundraiser gala during the Fort Lauderdale Boat Show ([www.billfish.org/gala](http://www.billfish.org/gala)). You can also donate to one of our programs (Tag & Release, Conservation Fund, etc.), or become a member ([www.membership.billfish.org](http://www.membership.billfish.org)).

Thank you for your time and tight lines.



Peter Chaibongsai  
Director of Conservation Programs



Join TBF Here



An underwater photograph showing the dark hull of a boat on the left and a diver's mask on the right. The water is clear blue with some suspended particles. The text is overlaid on the dark hull area.

## THE BILLFISH FOUNDATION'S TAG AND

**RELEASE PROGRAM** would not be possible without the dedicated support of our sponsors. We are exceptionally grateful to King Sailfish Mounts, Casa Vieja Lodge, Yeti, Garmin, Costa Sunglasses, Rock The Ocean Foundation, Boater's List and the International Game Fish Tournament Observers for their unwavering support. Another thank you to all billfish anglers, captains and mates who donated their time and resources to collect and report all this data to us, not to mention all the incredible photos as well.





*Photo by Skipper Mario*



## CONSERVATION MESSAGES FROM TBF'S TAG AND RELEASE SPONSORS

Since 1983, **COSTA** has developed meaningful partnerships with mission-aligned organizations - like The Billfish Foundation. Protecting our waters and wild places is a core value of the Costa brand, and something we believe every angler has a responsibility to be a steward of as well. That is why Costa is proud to be a longtime supporter of TBF's traditional tagging research program, which has helped transform the billfish fishery from catch and kill, to catch, tag and release. The science and data TBF captures not only allows advocacy for responsible and effective management of billfish and their ecosystems, but also raises the awareness (and importance) of sportfishing to coastal communities we call home.



**YETI** feels that the more time we spend outside, the more we understand our responsibility to protect the places we love. As climate change increases the intensity and frequency of natural disasters and weather events, YETI has committed more than ever to ensure our communities have access to a healthy and thriving natural environment for generations to come.



**KING SAILFISH MOUNTS** proudly supports The Billfish Foundation and its tag and release program. By tagging and releasing billfish, we're helping protect these majestic creatures and collecting valuable data that will aid in their conservation for generations to come. As a company specializing in creating stunning fish replicas, we are passionate about fishing and preserving our ocean's natural beauty. We stand behind TBF and its efforts to promote sustainable fishing practices. Together, we can make a real, science-based difference in the fight to preserve and conserve our ocean's precious resources for generations to come.



**ROCK THE OCEAN FOUNDATION** (RTO) raises public awareness about the issues impacting the world's oceans. Through initiatives such as Tortuga Music Festival, RTO is able to raise money to support scientific research, education, and ocean conservation. RTO also uniquely promotes TBF's efforts through their Conservation Village, a venue which allows TBF to discuss its Tag & Release Program and emphasize the importance of billfish and citizen science. Rock The Ocean proudly supports The Billfish Foundation's work to conserve and learn more about these fish and the communities dependent upon healthy fisheries.





**GARMIN** is proud to support The Billfish Foundation in their conservation and advocacy efforts for billfish around the globe. The work they do, along with the anglers and captains that voluntarily tag, release and report their billfish catches, is invaluable and vital to helping us further understand and protect the billfish species. We fully support TBF in their mission to increase awareness of the importance of tag and release because the more we know, the better we can do to ensure these fish are around for generations to catch.



**CASA VIEJA LODGE** is not only a world-class fishing lodge, but also strongly believes in supporting fishing conservation and protecting our marine environment. As a plastic-free campus, Casa Vieja Lodge completely eliminated all single-use plastic at the lodge and on the fleet as of 2018, and their support of data collection for billfish conservation illustrates their commitment and understanding to the importance of sustainable fishing efforts.



With a passion for connecting water and boat enthusiasts, **BOATER'S LIST** has aimed to be a resource for anyone interested in enjoying our marine environment. Collaboration is the basis of their platform, and their efforts thus far have been tremendous in supporting proper fisheries management and billfish conservation. With the mindset of enhancing everyone's experience in and on the water, Boater's List strives to do it the right way.



The **INTERNATIONAL GAME FISH TOURNAMENT OBSERVERS (IGFTO)** is dedicated to observing today, so we can conserve tomorrow. As a charitable non-profit organization filled with passionate and experienced professionals, IGFTO's goals focus on proper tournament and fisheries management so we can continue to preserve and conserve our game fish worldwide. We support The Billfish Foundation's (TBF) efforts' to safeguard billfish and lead the way in research and conservation.





# 2021 Overview

With 2021's year of fishing wrapped up, the results are in! There were 11,822 new data entries added to The Billfish Foundation's database, made up of tags, releases, and recaptures. 2021 was a fantastic year for tagging, with anglers tagging 6,335 billfish. Additionally, there were 5,412 billfish reported as released and 75 recaptures of previously tagged fish. The trophy species targeted by volunteer anglers of TBF include black marlin, blue marlin, sailfish, spearfish, striped marlin, white marlin, swordfish, yellowfin tuna, bluefin tuna, and all related subspecies.



Knowledge of these fish is sparse due to lack of data, specimens, and government funding for their conservation. As this is the case, The Billfish Foundation has grown to become the world's largest private billfish tagging database, working with anglers across the globe to increase tagging efforts to learn more about these fish and the communities who are dependent on them.

Compared to 2020, the number of data entries in 2021 did not grow significantly, unfortunately a continued result of the world's COVID-19 pandemic shut downs. Similar trends were observed in 2020, with annual records having thousands of fewer entries than years before. For context, 2021 anglers secured about 30-35% less tags than the yearly records of 2015 to 2019. This is by no means a result of lack of effort from anglers; in fact, the opposite is the case. Through TBF's outreach and advocacy programs, the number of participating anglers, captains, and countries increases noticeably each year. TBF predicts that yearly tag entries will continue to grow from this point on, without the restrictions implemented by global organizations.

While there are certainly yearly changes in the data we receive at TBF, there are some trends that seem to remain consistent. For instance, over the last five years, the best window of time for tagging any marlin subspecies falls between the months of May to September, with highest tagging contributions coming from the United States, Mexico, Central America, and Australia. Tagging trends prove this is the time of year billfish subspecies tend to come in closer to shore and are therefore more likely to be caught by anglers.



*Photo by Kevin Deerman*

On the other hand, 2021's data shows much different trends location-wise. This can be chalked up to a result of pandemic lockdowns impacting the efforts of charter companies, and having strict regulations on certain countries. For example, there were a much smaller number of tags that came from Asian countries, specifically Japan. This was a country faced with serious restrictions during the pandemic, hindering the amount of anglers able to fish. In the same vein, charter companies were unable to host clients and the frequency of fishing trips dwindled. Sportfishing tournaments were postponed or canceled, and if they proceeded, it was with many regulations. Unfortunately, this deterred some potential participants. TBF does not heavily rely on tournament tagging entries, as they tend to be few and far between, yet there was still a missed presence this year.

The Billfish Foundation does not encourage tagging during tournaments because crews might disregard the well-being and safety of a billfish in order to reset their rods quicker. The practice where boats in a tournament will race to tag as many fish as possible without taking the time to ensure the proper care is being taken for the caught fish is called "speed tagging." TBF's goal is for anglers to focus on taking proper care of the fish while

they're being tagged, making sure they are healthy upon release. So, until we can ensure the safety of the billfish is top priority, we recommend anglers avoid attempting to tag fish in high-stress environments.



That being said, we appreciate all efforts and attempts from our community to increase data collection. A tag does not need to be placed on a fish in order to send a record to TBF, we encourage anglers to submit release forms if tagging is not possible on a given trip. As always, we appreciate all of our community's efforts.

This year, a lot of tag, release, and recapture entries came from independent volunteers who were able to take their own boats out. In light of these circumstances, 2021 was still a great year for tagging. The data entries contributed by anglers amidst an international pandemic shows the dedication of TBF's community to bettering the research efforts needed in billfish conservation. Without volunteer anglers willing to tag and release billfish, there would be significantly less of a bright future for conservation.

Every fish caught by volunteer anglers of The Billfish Foundation tells a story, but to do so it must be caught first. This year, the most popular method of landing a billfish was by using dead or artificial bait on a circle hook. The method of capture is one of the lesser recorded aspects of overall data collection, however there is a



strong prevalence to using either circle or J-hooks on standard fishing rods. As the fish caught by anglers are on a volunteer basis, these materials are the most accessible for successfully landing billfish.

If you're unfamiliar with how these records are categorized, here is a quick breakdown.

### TAGS

A tagged fish refers to a fish caught by an angler who was able to place a tag onto the fish and release it back into the ocean. These tags are distributed by The Billfish Foundation and any fisherman can purchase and receive them from our online shop. To safely and successfully tag a billfish, it must be brought up alongside the boat. Then, assuming the conditions are adequate, the tagging equipment is prepped, and the billfish is compliant, a tag can be deployed.

Traditional tags, often referred to as “spaghetti tags”, consist of a thin piece of flexible material and a unique Tag Identification number printed onto it. For TBF, that unique number will consist of six numerical digits preceded by the letters “BF”.

The tag itself has a barb-like end piece that can be inserted just under the fish's upper layer of skin, ideally aligned with the fish's dorsal fin.

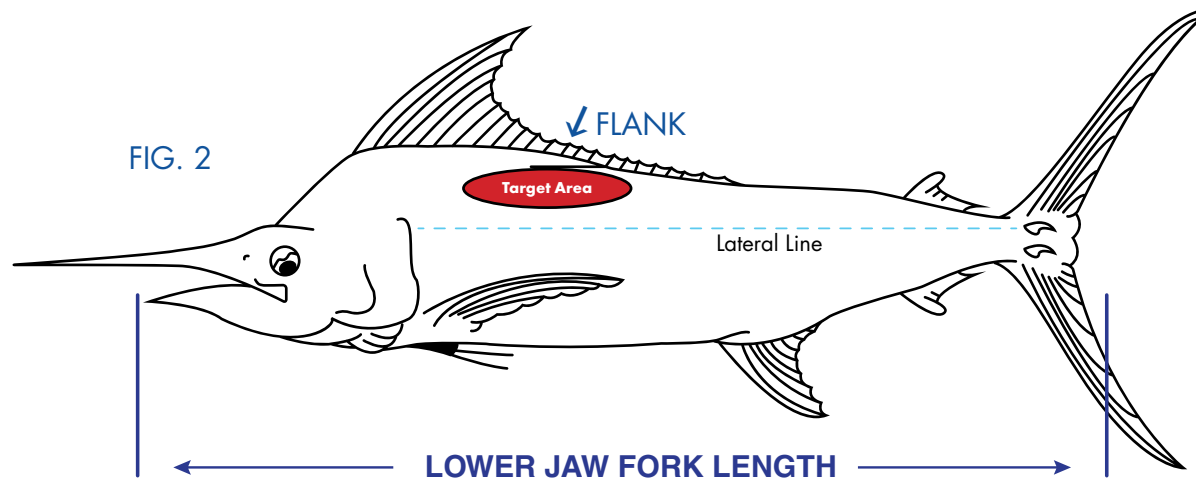
Each tag corresponds to an identification card for an angler to fill out. The information on the card, which can be entered online or manually on the card and mailed to TBF, contains information such as species, location, estimated size, etc. After this data is

recorded, the fish should be revived and released following the proper revival procedures. All submitted data will be logged into TBF's billfish database where it can then be used to support billfish conservation and proper fisheries management.

Important to Note: Billfish

tagging does not require the fish to leave the water, not even for an instance. According to HMS Regulations, “if a billfish is caught by a hook and not retained, the fish must be released by cutting the line near the hook or by using a dehooking device, in either case without removing the fish from the water.”

As per ICCAT stock assessments, the United States recreational fishery is only permitted to retain 250 marlin annually without the need to reduce the annual limit or increase the minimum size.



*Proper billfish tag location*



**Buy Tagging Equipment**

The deployment of traditional tags and the data gathered from recaptured billfish provides valuable scientific data to further understand growth rates, migratory patterns, habitat utilization, and post-release survival rates. Tag and release data also provides valuable information for stock assessments that are instrumental in a time when industrial longlines represent the largest source of billfish mortality. Without traditional tagging, there would be no way to gather this valuable data, which provides the groundwork for conservation-minded policy, scientific advancement, and gives insight into the demographics and socio-economic benefits generated from billfishing.

In addition to traditional tags, satellite tags are another option being utilized by TBF for billfish conservation. Satellite tagging differs from traditional tagging in that the tags administered convey finite but extremely detailed information to researchers. While traditional tagging generally provides us with the long-term habits of billfish, being the most effective when a billfish is recaptured with a TBF tag, satellite tagging can tell us about the short-term and day-to-day behaviors. Once deployed, these tags can last up to 12 months or more, transmitting data to satellites in orbit.



A double tag - traditional and satellite tagged Blue marlin in the Gulf of Mexico.

Photo courtesy of Austino Coit.

Examples of information gained from these tags include vertical movement habits of sailfish, the post-release behavior of several marlin subspecies, as well as the vertical habitat use of blue marlin.

Due to high expense and training needed to properly deploy satellite tags, TBF does not traditionally give satellite tags to its members. The Billfish Foundation does however host, sponsor, and fund individual research teams to go out and place these tags. TBF's satellite tags have been deployed all over the world and have tracked billfish species for years. TBF has a general goal of deploying 10-20 tags annually based on available funding and need.

Not every person in the angling community has the facilities to pay for a TBF membership or tagging equipment, nor has every angler heard of the program. This is where TBF's International Tagging Grant comes

into the picture. The International Tagging Grant was established to provide individuals and fishing outfits the opportunity to provide valuable billfish data in data-poor regions. We award



traditional tagging kits to help learn more about billfish population, movements, and localized fishing efforts. Past Grant recipients came from locations such as Indonesia, Vanuatu, Marshall Islands, Ascension Islands, Nigeria, Egypt, and Ecuador. This program helps to promote the region while also providing us with vital billfish and recreational fishing information from the area. To learn more about the Tagging Grant Program, visit our website, or contact us at [tag@billfish.org](mailto:tag@billfish.org).

## RELEASES

The procedure of a release is similar to that of a tag, just without the process of applying a tag. To complete a release, an angler must pull the fish close enough to the boat for a proper species identification and size reference. The angler then will record the relevant information onto a TBF release card and submit that information to us either electronically or via mail. There are a number of reasons why an angler or captain might choose to release a billfish rather than tag, with the most likely examples being related to safety, weather conditions, or a lack of tagging equipment. Releases are still beneficial for TBF's database, with the biggest downside being a lack of recapture information if that same billfish is caught again in the future.

## RECAPTURES

A recapture is an incredibly important event for TBF's tagging efforts, occurring only when an angler catches a fish that has previously been tagged. In the event a fish is recaptured, the tag can be removed from the fish, enabling the angler to record the tag identification number. If the tag is removed, an angler has the option to deploy a new tag on the fish with no resulting harmful effects. With recaptures, TBF is provided with two timestamps of

To recognize the efforts of those who deploy traditional tags, TBF hosts an International Tag and Release Competition. This global competition encourages crews to submit as many tag and release cards as possible. In addition to our international competition, there are four regional competitions as well - in the Gulf of Mexico, South Florida, Cape Verde, and Hawaii.

To learn more about these competitions and the rules, visit our website at [Billfish.org/competition](http://Billfish.org/competition).



one fish at different locations, thus providing researchers with comparative data that can be utilized to better understand key habitats, migration patterns, and stock levels of fish in certain areas. Unfortunately, not all tags placed on fish are recorded with TBF. In some instances, anglers and captains tag billfish and fail to submit the data to our system. This can have detrimental effects on recaptures when a fish is recaptured but without any record of the initial tag. At TBF, we call these tags “orphan tags.” Orphan tags fail to provide the full extent of a fish's journey, and unfortunately provide no insight into what the fish has been through. Be sure to record and submit the fish data via our application or on the card immediately.





An underwater photograph showing a red buoy attached to a rope, with a propeller visible in the background. The scene is dimly lit, with a blueish-green tint. The text "REPORTED SPECIES DATA" is overlaid in the upper right corner.

# REPORTED SPECIES DATA



### Overview

Found in the tropical areas of the Pacific and Indian Oceans, the black marlin is a much sought after trophy fish. They are distinguishable from other marlin species by their shorter bill, small and rounded dorsal fin, and dark coloration. In addition, they are the only species of marlin that cannot retract their pectoral fins - the fins are extremely rigid, unable to fold against their bodies once the fish reaches maturity. They can reach lengths of 15 feet and weigh up to 1,600 pounds, similar to the maximum size of a blue marlin.



**BLACK  
MARLIN**



## TAGS

For 2021, anglers tagged an impressive 84 black marlin. The average size of a tagged fish was 189.6 pounds and 63.7 inches in length. Compared to the previous year, the fish caught have been much larger. The largest fish caught this year was 264.6 pounds and 90.5 inches long.

Of these fish, only 12 were not tagged in the waters off Australia. Hotspots in Australia for black marlin this year were along the western coast, most notably Coral Bay, Exmouth, and Groote Eylandt. Throughout the months of 2021, tagging was relatively consistent, with peaks seen in August and November.



## RELEASES

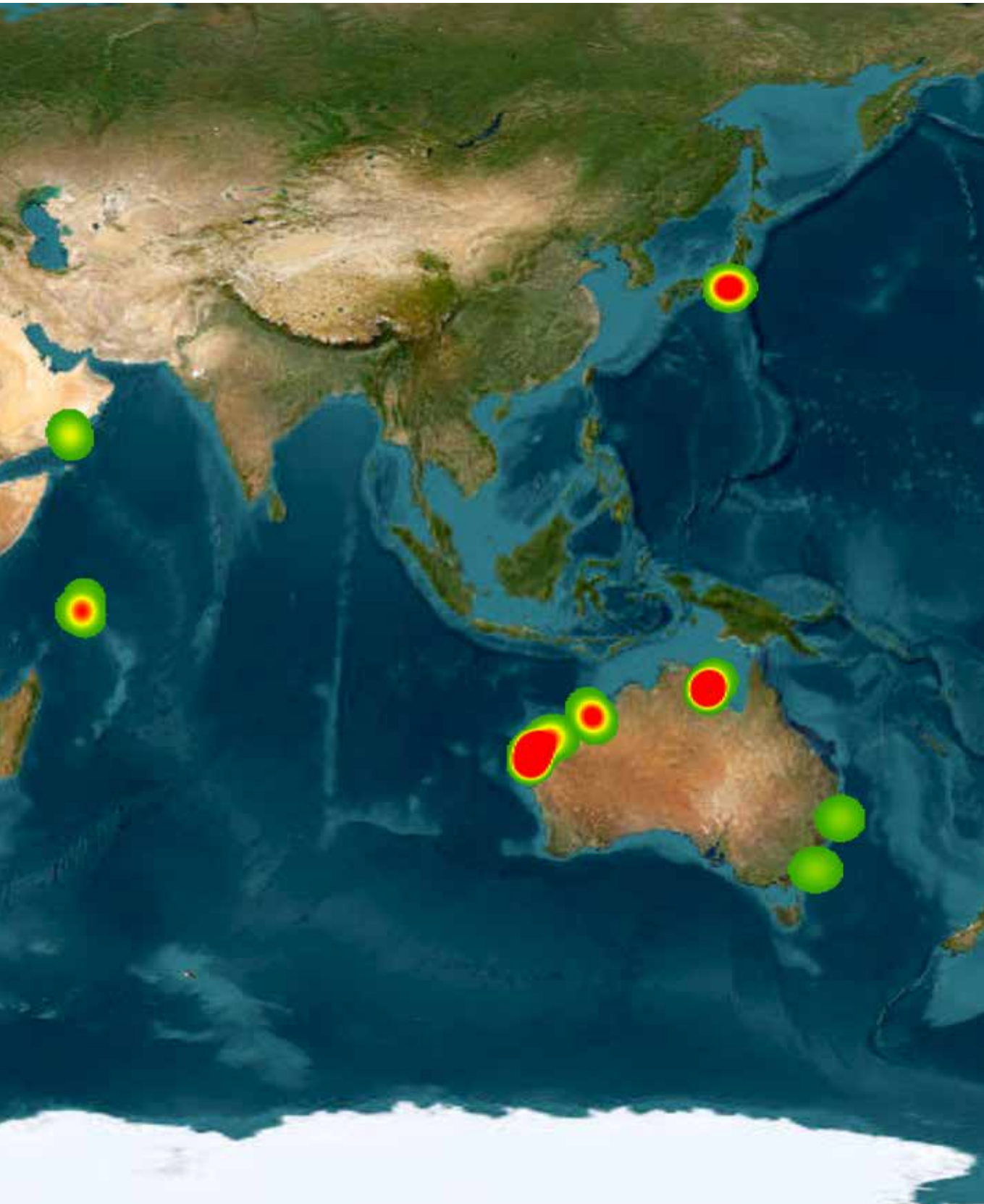
In contrast to the previous year (2020), there were 125 released fish in 2021, the majority of which were caught on the eastern coast of Australia. Unlike the consistent monthly distribution of tags, releases heavily fell in the months from November to February. Of the 125 releases, 61 of them were in this time period. As these are the warmest months in the southern hemisphere, these trends align as expected. There were only four black marlin releases not in Australian waters.





**BLACK MARLIN TAGGING  
2021, GLOBALLY**





**SCIENTIFIC NAME:**  
**Istiompax indica**

**FUN FACT:**  
**Every black marlin  
is born as a female.**



*Photo by Casa Vieja Lodge*



## OVERVIEW

The blue marlin is categorized as the largest of all billfish species, measuring up to 16 feet in length and weighing in at nearly 2,000 pounds. Characterized by their pointed bills, cobalt blue color, stocky body, and small, triangular dorsal fins, these fish are easily distinguishable from other billfish. There are two categories in which blue marlin fall into, those being Atlantic and Indo-Pacific. Indo-Pacific marlin tend to be heavier and longer, however there are no major distinguishing features between the two populations.

Anglers had the best luck catching these fish on traditional rod and reel setups (either manual or electric), using artificial bait. This year saw an increase of blue marlin catches in the northern hemisphere's summer months, when the water temperatures were the warmest. Data shows remarkable spikes in tags per day at this time in this area compared to other times of the year. The best time and location for catching these fish this year was during the period from June to September in the Atlantic Ocean and Gulf of Mexico.

# BLUE MARLIN

*Photo courtesy of Richard Gibson*



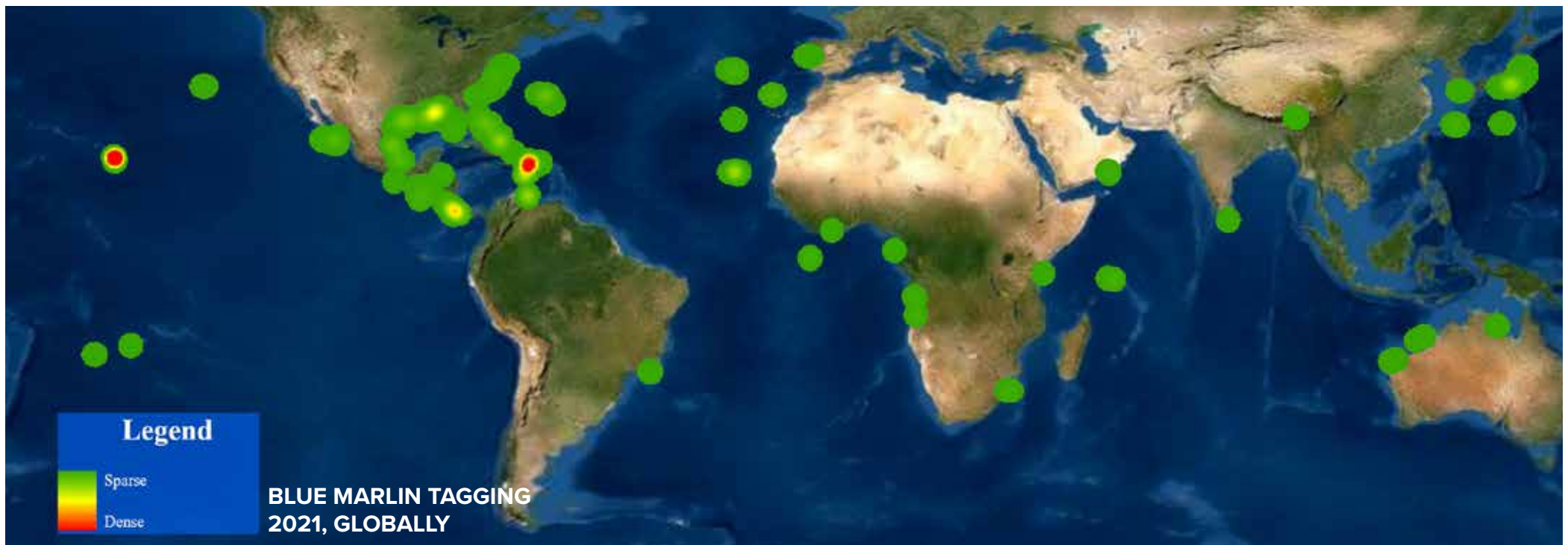
## TAGS

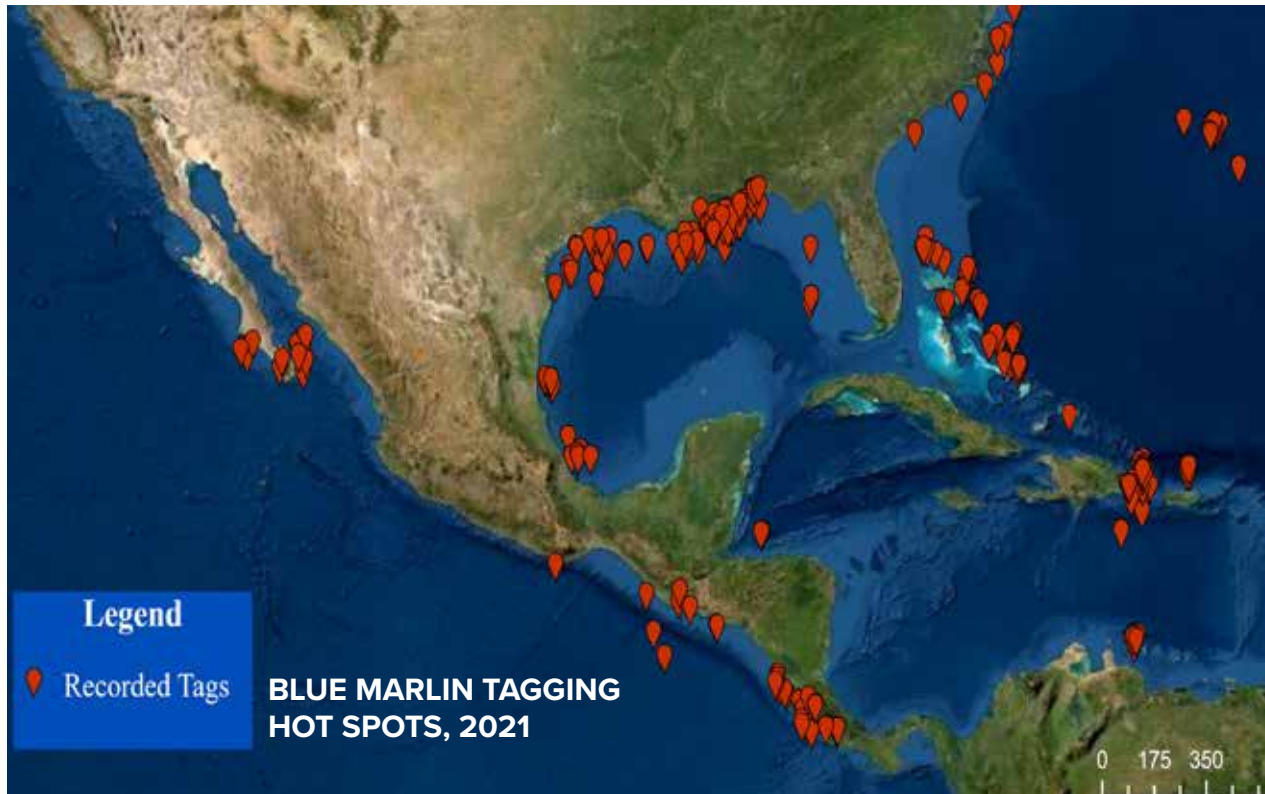
In 2021, a total of 952 blue marlin were caught and tagged, comprising about one fifth of the total tags placed this past year. As stated, these fish are the largest of all billfish species; the reported fish this year had an average weight of 207.72 pounds and a length of 95.05 inches. This is a small average for blue marlin weight, however not all tag and release records include the weight of the fish, so this is an average based off of the data TBF received in 2021. Interestingly, this year's catch was leaner than previous years; compared to 2020 data, the fish caught this year were lighter by an average of almost 60 pounds but longer by seven inches. This year also saw greater variance in size of blue marlin, with the smallest tagged fish at 20 pounds and the largest weighing in at 1,322 pounds.

Geographically, no billfish had such an extensive range as the blue marlin. With remarkable levels of recorded tags in all three major oceans, blue marlins have proven to be able to thrive in almost all

temperatures and conditions of water. There is no surprise why they are the largest of all billfish as their adaptability has proven to facilitate thriving populations worldwide.

Predominantly tagged in the Atlantic Ocean, this species was found most concentrated in the warmer, coastal waters near North America, as well as holed up in the Gulf of Mexico. For the fifth year in a row, the United States holds the record for the number of blue marlins tagged, with its captains tagging 756 of this year's 952 blue marlin. In addition, countries like Mexico, The Dominican Republic and The Bahamas had remarkably high levels of tagging, as to be expected when considering past blue marlin hotspots. With standard habitats in warm water locations, the United States had a large advantage this year with its proximity to the Tropics.





Hotspots of blue marlin activity in North America included the Gulf of Mexico as well as the Caribbean Islands and Hawaii. Looking at the Gulf of Mexico closer, we can see the highest density of tags placed fell around the area known as the Desoto Canyon. With high cliff walls and diverse topography, this underwater canyon has a long history of supporting the blue marlin population of these waters. Fishermen flock to this canyon as it is a notorious habitat for larger trophy species, another reason the tagging density is so high in this area.

Another area to highlight from 2021's data is Kona, Hawaii. This coastline is notorious for having a prolific blue marlin population, and this year was no different. One hundred and eighteen blue marlin were tagged off the Kona coastline, an area whose productivity comes from large upwelling trends as well as a wind shadow that facilitates calm seas. These consistent conditions attract both anglers and fish year-round, turning Kona's coast into a legendary fishing spot.

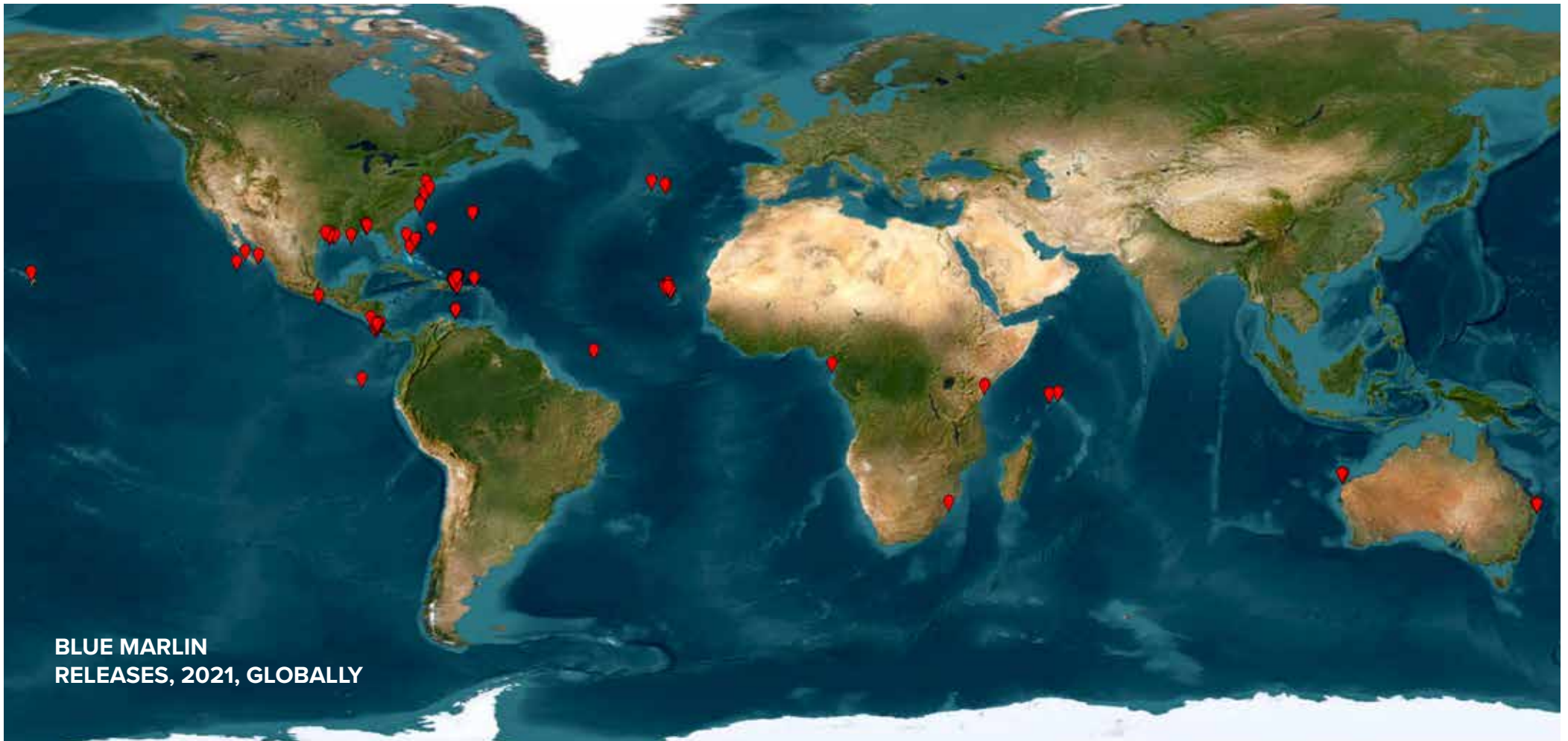
## RELEASES

Along with the comprehensive tagging data, the release data provides a great understanding of the blue marlin habitat. In 2021 there were 522 blue marlin releases submitted to TBF's database. With the same general world distribution as the tagged captures, this data further solidifies what is known about blue marlin habitat areas. Countries off the west coast of Africa as well as in the North American tropics tend to exhibit higher levels of tag-less releases, as there is a lack of tags ordered by anglers in these areas.

In the coming years, The Billfish Foundation intends to fill in these gaps, supplying crews in these countries with tagging equipment through our International Tagging Grant.

The Billfish Foundation saw less releases than taggings this year. With each passing year, more and more tags have been sent out to anglers and placed on fish, adding to the





extensive database of blue marlin information. As with tagging trends, recapture rates saw their peak in warmer months. From May to August there were 249 recorded releases, almost half of the full year's released fish.

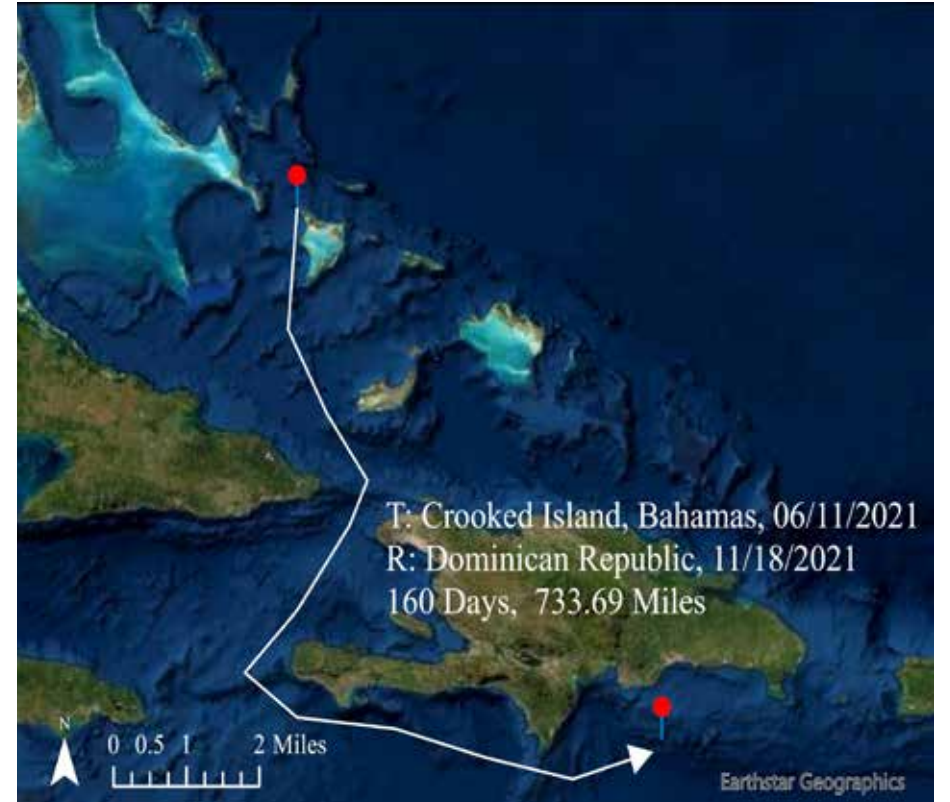
#### SCIENTIFIC NAME

**Makaira nigricans (Atlantic blue marlin)**

**Makaira mazara (Indo-Pacific blue marlin)**

#### FUN FACT:

**Through satellite tags, blue marlin have been tracked migrating around the world between the Atlantic and Pacific Oceans.**





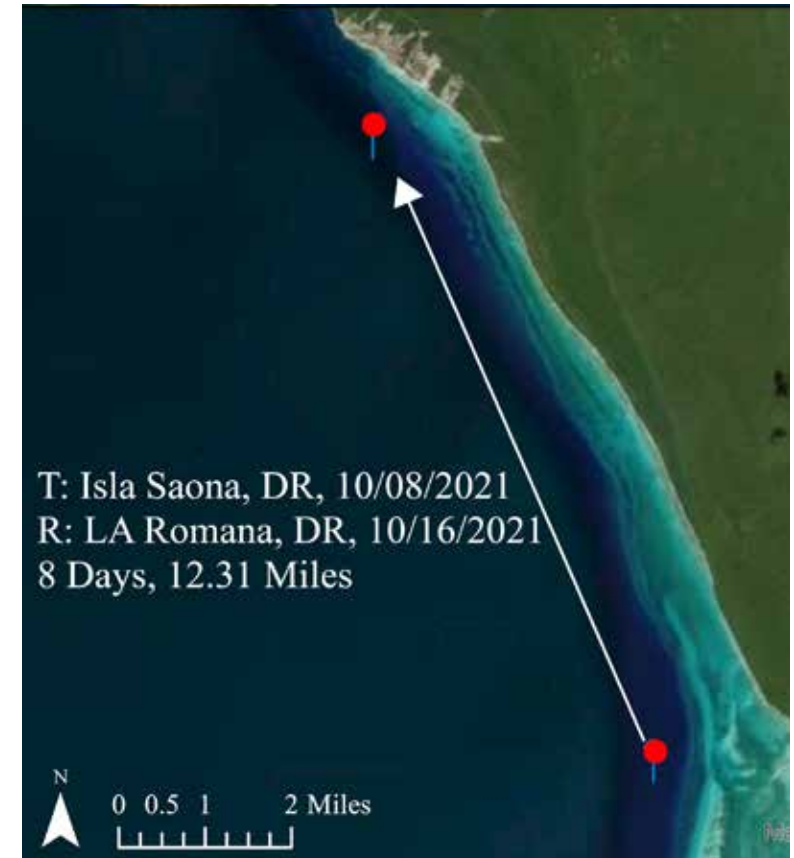
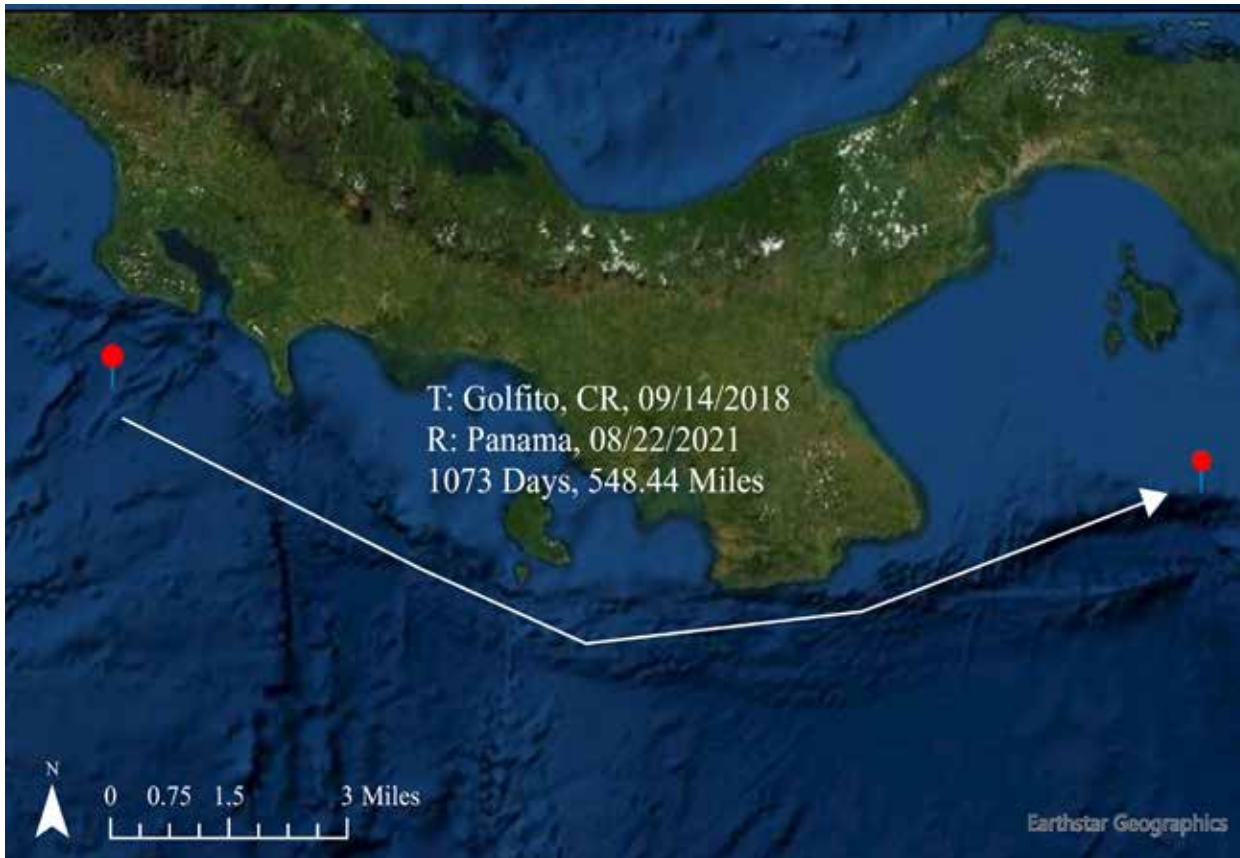
## RECAPTURES

This past year had some notable recaptures. Of the recaptured blue marlin, remarkably, five of them had their original tagging data in place. The recaptured tags provide valuable insights to the importance of ongoing research and conservation efforts. It allows a broader understanding of the species which can aid in their conservation and management.

Tracking the distance between the original tag location and the recapture location is especially crucial in piecing together the puzzle of blue marlin movements. It helps shed light on their

migratory patterns, preferred habitats, and the factors that influence their behavior, ultimately supporting the preservation of these fish and their ecosystems.

Although the blue marlin has an extensive amount of territory they can habitate, recapture data reflects their dependence on tropical waters. Over the past five years, there have been a total of 62 blue marlin tag recoveries. Of these 62, 46 were recaptured in the warm waters between Central America (both Atlantic and Pacific side) and the Caribbean Sea.







## OVERVIEW

With their massive dorsal fins that stretch the entire length of their body, sailfish are easily distinguishable from other species of billfish. As part of the marlin family, they share many characteristics with blue, black, and striped marlin, such as general body structure and their bill length to body ratios. Not only are sailfish the fastest species of billfish, they are the fastest marine species in the ocean, reaching speeds up to nearly 70 miles an hour.

Found all over the world, there are two subspecies of sailfish, the Atlantic and Indo-Pacific.

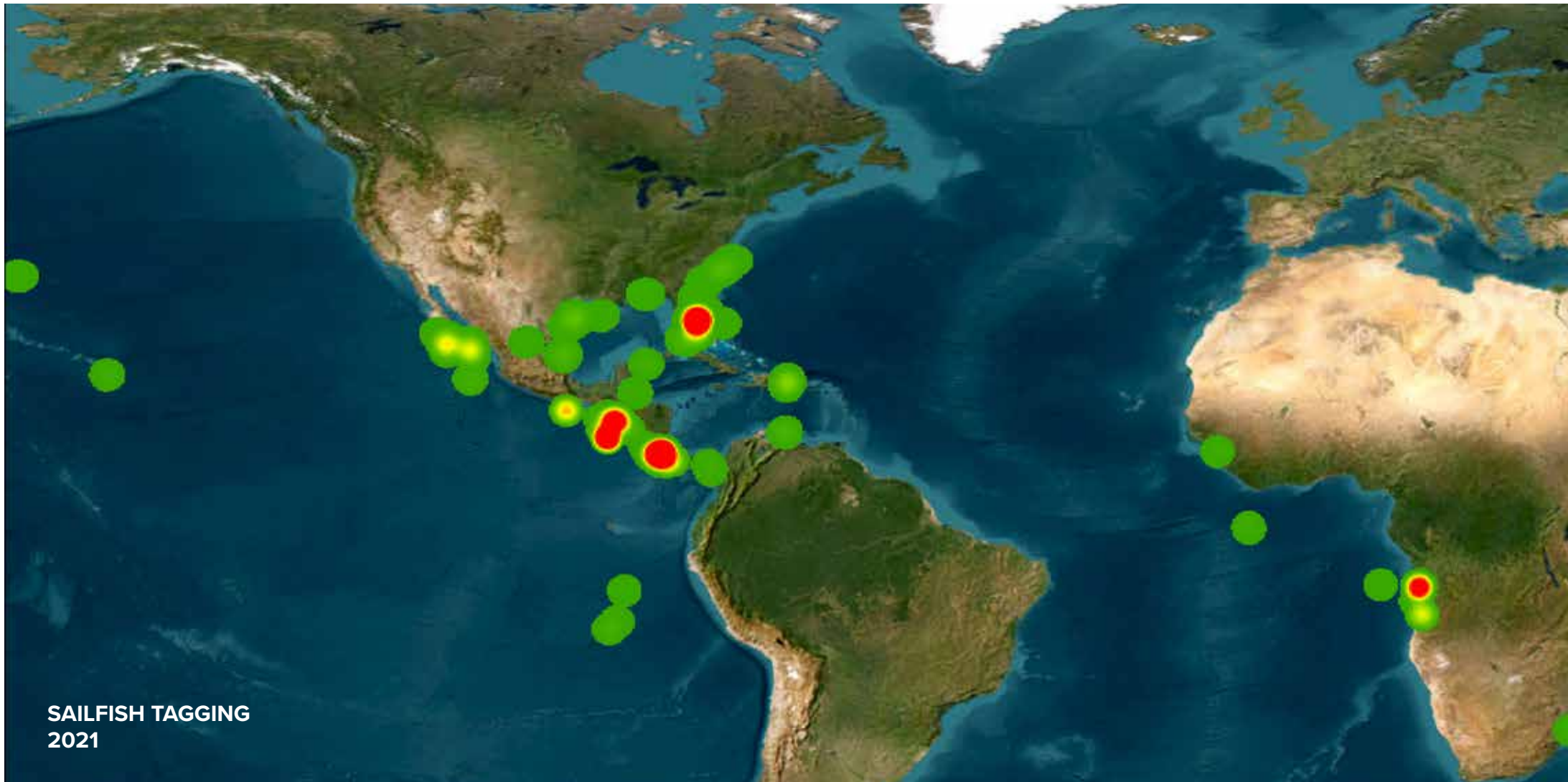


According to National Geographic, Atlantic populations of sailfish are smaller compared to those in the Indo-Pacific. Additionally, Indo-Pacific sailfish are much darker in color than Atlantic sailfish. Like other species of marlin, sailfish prefer tropical water and come within 50 meters of the surface to hunt. The largest sailfish ever caught was over 11 feet long and weighed 220 pounds, yet most anglers will never encounter a sailfish this large. Including both subspecies of sailfish, the average length of an adult caught is around six feet, with a weight in the 60 pound range. Anglers had the most success this year catching sailfish using live bait and circle hooks.



*Tim Simpson, Bluewater Publishing*



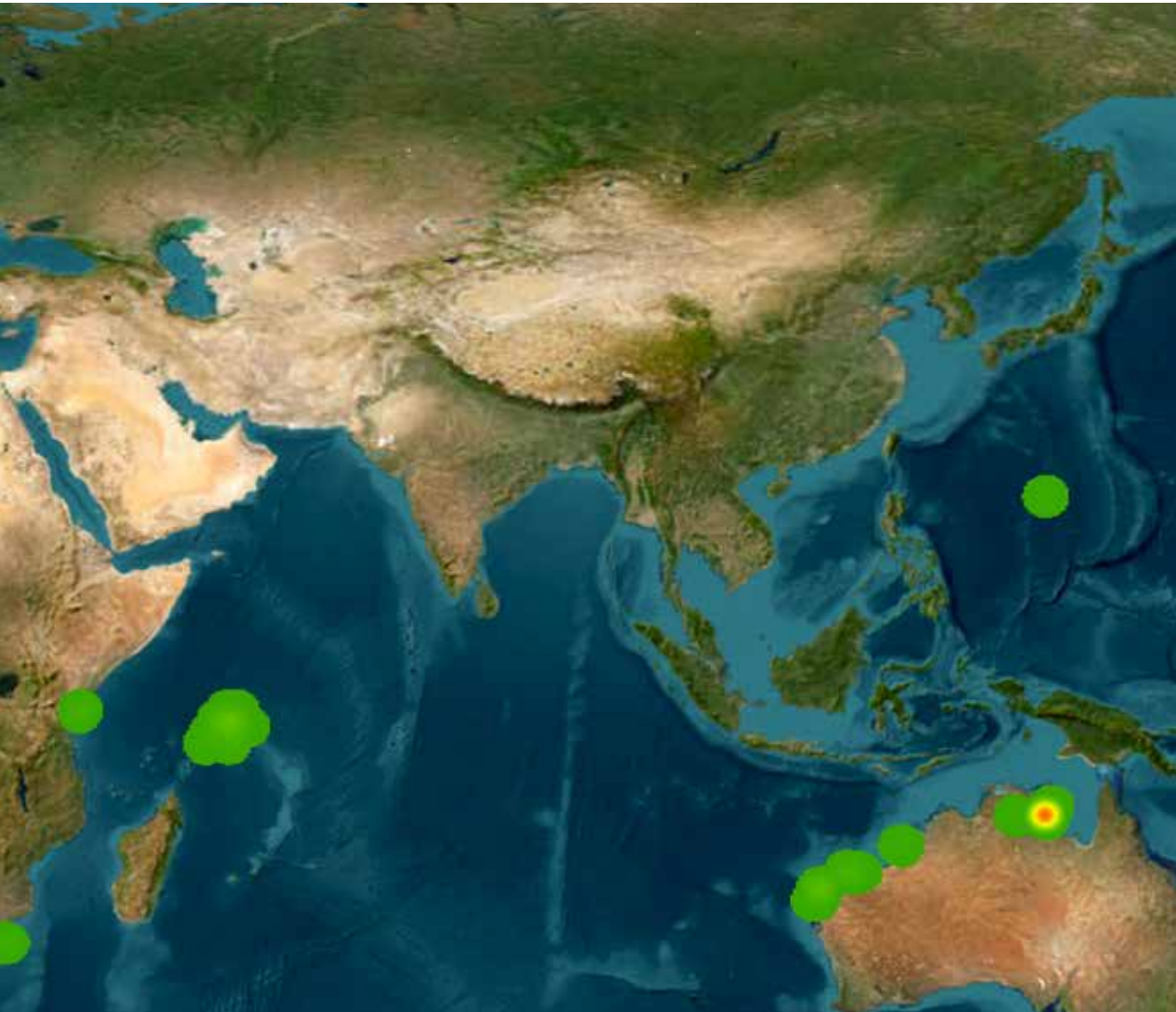


## TAGS

In 2021, an astonishing 2,315 sailfish were tagged, which was nearly double the number compared to the previous year. Compared to last year, the total number of sailfish tagged almost doubled. This year's data yield is extremely impressive, adding extensive information into the ever-developing database. A notable difference between the previous year and this year is the number of sailfish tagged in the Atlantic tropics. In 2020, there were almost 800 sailfish tagged

in these waters, yet in 2021 there were several hundred less tags placed (438). Sailfish tags placed off the Florida coast in 2020 comprised more than half the total number of the yearly tags, while this year the number of tags in the same location only represented a fifth of the yearly total. The largest sailfish hotspots this year were Florida and Central America, both on the Atlantic and Pacific coasts. Anglers had the most luck fishing of the coasts of Costa Rica and Guatemala, with these places yielding a combined total of 1,400 sailfish tags.



**SCIENTIFIC NAME*****Istiophorus platypterus*****FUN FACT**

Reaching top speeds of more than **70 mph**, sailfish are considered the fastest species in the ocean.



Anglers this year had the largest success tagging sailfish in the northern hemisphere's winter months, as cooler tropical waters tend to facilitate the best habitat for sailfish. In addition, due to the density of sailfish tournaments from November through March, TBF sees a higher than usual influx of tags immediately after these tournaments. As the year progresses, sailfish season comes to an end and tag entries begin to slow.

Warmer water temperatures drive sailfish deep into the Gulf of Mexico, out of reach for fishermen. With such a massive distance from shore, typically hundreds of miles away, tag levels then stay relatively low until the reintroduction of cold fronts, typically in late October or early November, which push the sailfish closer to land.





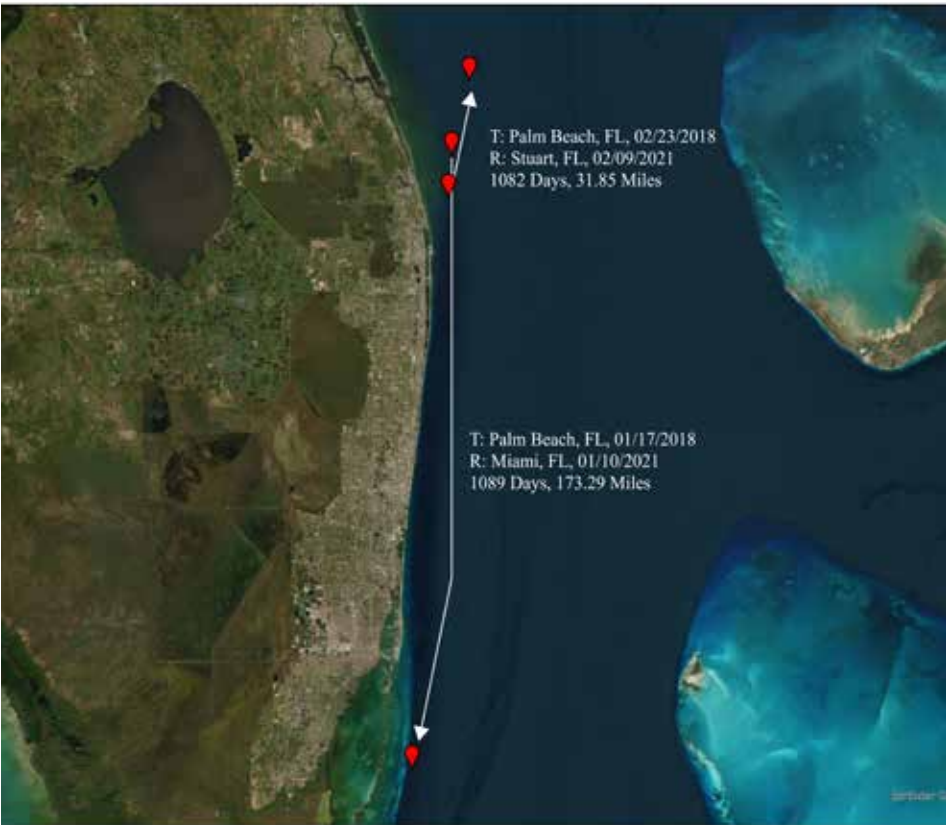
## RELEASES

For 2021, there were much less sailfish released without tags than with tags. Anglers released 926 sailfish without tags, only two thirds of 2020's 1,500 sailfish releases. Locationally, release hotspots were found in the same place as tagging hotspots, with the Florida coastline and Central America reflecting high levels of releases. Additionally, sailfish releases were most dense in the colder months of the northern hemisphere, the time of year these fish truly come into season.

## RECAPTURES

An astonishing 35 sailfish were recaptured with previous tags this year. With only five of these tags having no prior tag association, anglers added 30 new recaptures to the database. Once again, sailfish were the fish with the highest amount of recaptures logged. The majority of these recaptures took place in South Florida, an area of coastline with an emphasis on sailfish population restoration and conservation. These efforts often lead to increased recaptures in this area, this year being no exception.







# SPEARFISH

## OVERVIEW

There are two main subspecies of spearfish, the longbill and the shortbill spearfish. Shortbills tend to be found in the Pacific and Indian Ocean while longbills are usually found in the tropics of the Atlantic Ocean. A third subspecies, the roundscale spearfish (also known as the hatchet marlin), was discovered as a new species about 10 years ago. Being an average of 35 pounds in weight and no more than 70 inches long, these small fish are a target all over the world, albeit with much difficulty. Spearfish are the least represented species in TBF's database, so every tag submitted

Photo by Capt. Vince Riera





is extremely important. This fish has many extreme similarities to white marlin, making the two almost indistinguishable. With this being the case, roundscale spearfish tags are often combined with white marlin tags.

## TAGS

Forty-five tags were placed on the family of spearfishes this year. Anglers tagged 15 longbill spearfish and 30 shortbill spearfish. The average weight of spearfish this year was 26.7 pounds while the average length was 60.18 inches. The largest spearfish caught this year was a 60-pound shortbill spearfish, caught in the Sea of Cortez. For spearfish of both subspecies, anglers had the most success using artificial bait on a J-hook, a rig set up not commonly seen in billfishing.

Nine more spearfish were tagged this year than last year, a substantial addition to the database. This bounceback in tagging is crucial for TBF's database. Compared to last year's averages, the fish tagged this year were slightly larger. The average weights were almost identical between 2020 and 2021 data, with the only significant difference between the two years being the eight inch difference in average length. Tagging locations with high yield for spearfish tend to be in the same places every year. For shortbill spearfish, the area with highest tagging density is the coastline in Kona, Hawaii. A staggering 26 of this year's tagged spearfish were tagged in this location.





KONA COASTLINE, BIG ISLAND HAWAII  
SPEARFISH TAGS

KONA COASTLINE, BIG ISLAND HAWAII  
SPEARFISH RECAPTURES



## RELEASES

For longbill spearfish, anglers had much luck off the coast of Spain. Twelve longbill spearfish were caught off of Mallorca, Spain this year. Combining the tagging numbers from these two hotspots, we see that 84% percent of the 2021 tagged spearfish came from one of these locations. With this taken into account, it is no surprise that almost every year TBF's tag and release winners for the spearfish category come from these two areas. Similar to other billfish, the ideal time of year to land a spearfish is in the time between June and

September. Since spearfish can be found in every ocean, the opportunity during these months is not limited by location. Hotspots for these fish are the Hawaiian coastlines as well as in the Mediterranean Sea as they tend to favor warmer water. Due to their smaller population size, it can prove difficult to catch a spearfish, regardless of timing and location. While they are a billfish, they are less sought after in terms of trophy fishing due to their smaller size.





**SCIENTIFIC NAME**

Mediterranean (*Tetrapturus belone*) - Shortbill (*Tetrapturus angustirostris*)

Roundscale (*Tetrapturus georgii*) - Longbill (*Tetrapturus pfluegeri*)

**FUN FACT:**

There are four types of spearfish. Each type lives in a different area of the world.



# STRIPED MARLIN

## OVERVIEW

Striped marlin are a species of billfish native to the Pacific and Indian Oceans, living in the top few hundred feet of the water column. The origin of their name is derived from the distinct blue stripes that run vertically down their bodies, a characteristic not found in other species of billfish. In size, they average about nine feet in length but can grow to be up to 14 feet long. Striped marlin are a smaller subspecies of marlin, with the largest striped marlin caught only weighing in at 494 pounds.



## TAGS

This year, anglers were able to catch and tag 2,275 striped marlin, the largest amount ever recorded to TBF. Crews quadrupled the number of tags placed on striped marlin compared to last year and doubled the previous record amount of tags placed on striped marlin in a year (961 tags in 2018). These fish were found mostly in the waters of Mexico's Baja California, namely Cabo, as well as in Japan. Due to COVID-19 regulations being placed heavily on areas like Mexico and Japan in 2020, a reduction in tags compared to 2021 is expected. Growth between years like this is extremely important for TBF's database: not only is the addition of more fish crucial to understanding behavioral and migration patterns, scientists are able to use this data





## Striped Marlin



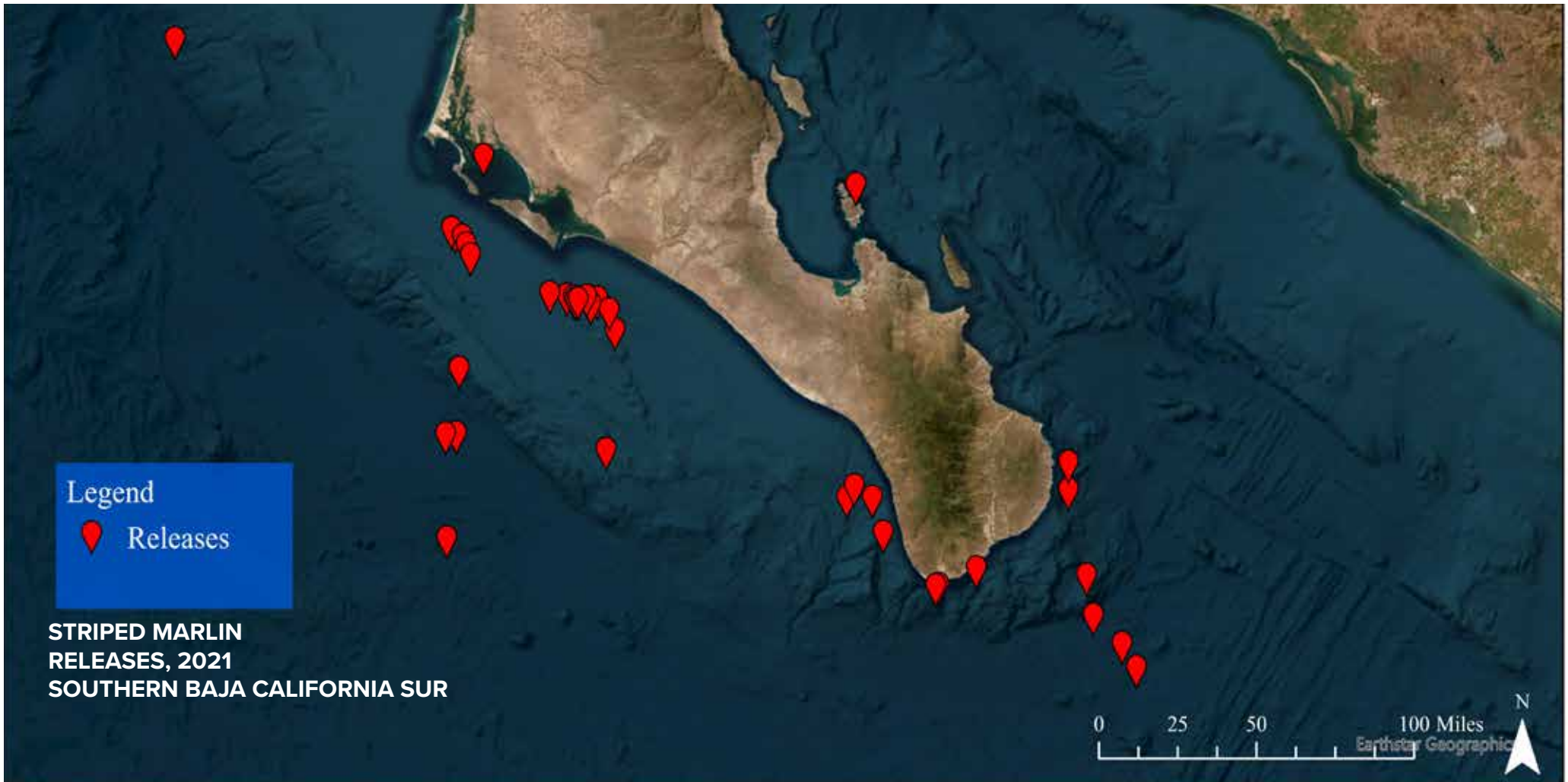
to measure how stock levels of striped marlin have changed in the year after the pandemic. Anglers had the most success this year in catching striped marlin when using dead bait on a circle hook.

The average weight of a tagged striped marlin was 98.4 pounds and the average length came in at 87.4 inches. When compared to last year, the fish caught this year were overall larger in size. Additionally, this year's largest striped marlin was an estimated 200 pounds!

Without any competition, the southern Baja California Peninsula region took the prize for this year's tagging efforts. Out of all striped marlin tagged, almost 95% of these fish were tagged in Mexico's Pacific waters. With Mexico, unlike Japan, opening up more leniently after 2020's year of the pandemic, it is no surprise that the large majority of striped marlin were tagged in these waters.

*Photo by Rebecca Murray, Sport Fishing Photography*



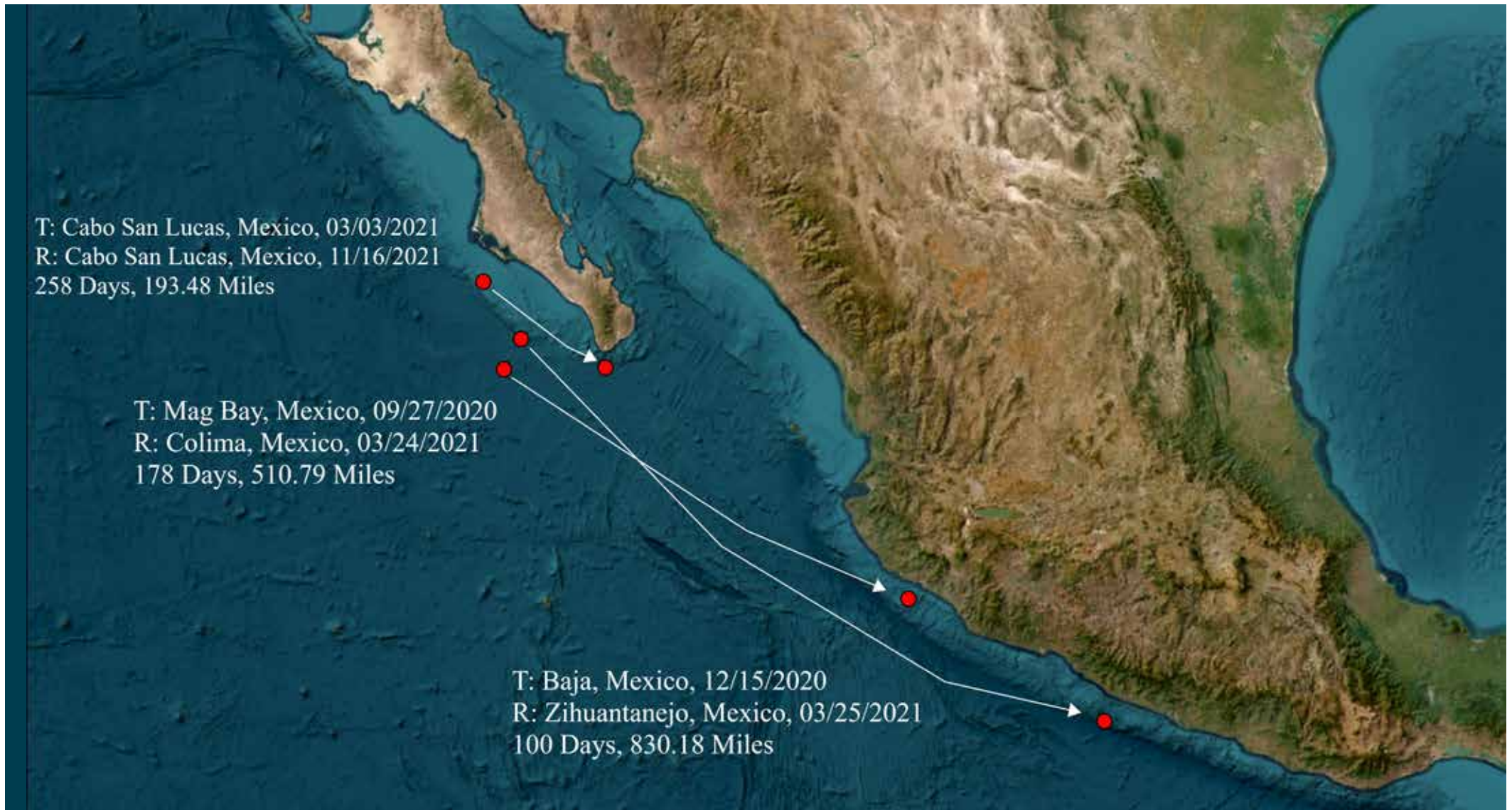


## RELEASES

This year, there was an astonishing 3,653 striped marlin releases. Out of all species, striped marlin are the fish that are most commonly released without a tag. With release cards, unlike tag cards, a single card can have represent multiple fish. In 2021, some of the cards contained release data for upwards of 50 fish! So, although TBF only received 225 release records, those cards gave us information for over three thousand fish!

Similar to the location distribution of the recorded tags, striped marlin released in 2021 tended to be caught offshore of Mexico. Cabo San Lucas is known as the “marlin capital of the world”, and 2021’s striped marlin releases alone support that claim!





## RECAPTURES

In 2021, there were a total of 12 striped marlin recaptures! All 12 took place in Mexico, and 10 of the 12 recaptures were in either Magdalena Bay or Cabo San Lucas.

This was a great year for Mexico's recreational recaptures, as in the past recaptures tended to have been equally distributed between Japan and Mexico.







**SCIENTIFIC NAME**

*Kajikia audax*

**FUN FACT:**

**Pigmentation in a striped marlin's stripes change color when the fish is excited or on the hunt.**



# SWORDFISH

## OVERVIEW

Though most of TBF's swordfish records originate from the Atlantic Ocean, the swordfish is a billfish subspecies found worldwide. Sometimes known as broadbills, these fish are distinguished from other billfish by their characteristically long and wide bills, unusual from the typical thin, cylindrical bill of other billfish subspecies. Swordfish have extremely large eyes, lack scales, and have small dorsal fins; all traits they've developed from their deep-sea habitats. Swordfish tend to live on continental shelves anywhere from one to three thousand feet below the surface, only nearing the surface at night to hunt. They can reach up to 1,200 pounds and 14 feet in length.

A unique characteristic of the swordfish is an organ in their heads that channels heat directly into their brains. This allows them to heat their eyes up to 10 degrees warmer than surrounding ambient water temperatures. This adaptation allows them to live in much deeper water than any other billfish are able to, giving them amazing eyesight in near-black conditions.



## TAGS

This year, anglers tagged 225 swordfish. The average size of a swordfish was 65.2 pounds and 52.1 inches in length, an increase in size from last year's data. The largest tagged swordfish was estimated to be just over 310 pounds! As mentioned on the previous page, the majority of tags were recorded in the Atlantic Ocean, with major hotspots being in the Gulf of Mexico and Florida. Of the 225 tagged swordfish, 201 of them were tagged in these areas. Tagging was relatively consistent throughout the year, with significant increases only seen in the months from May to August when water temperatures in the Atlantic Ocean are warmer.

As swordfishing can be a solo expedition, COVID-19 regulations seemingly had a minimum effect on the overall numbers. However, despite an increase in tags, swordfish will always be a lesser tagged species for a number of reasons. First, as a species with the ability to dive thousands of feet, the battle with anglers can sometimes be long, tiresome, and difficult (although swordfish tend to be weak once reaching the surface). Next, due to their high edibility and resale value, swordfish have a higher likelihood of being retained. As a commercially valuable species, the number of tags and releases will always be significantly different than other billfish species.







## RELEASES

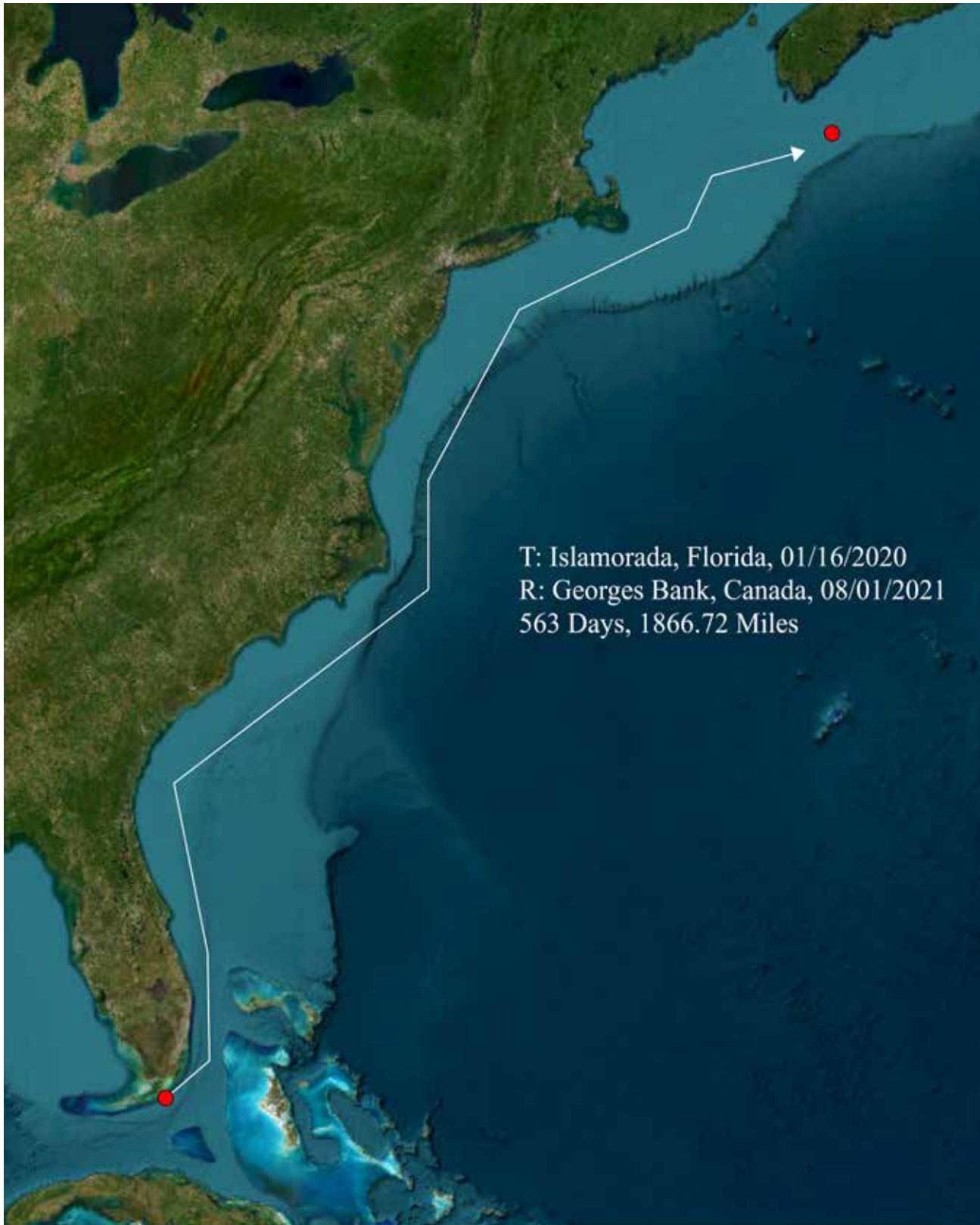
As swordfish are viewed more as a food and less as a trophy fish, there are very few anglers who report released and untagged swordfish to TBF. That being said, there were 10 records of swordfish released this year. Evenly distributed across the globe, there does not seem to be any significant factor in why these fish were released without tags.





*Photo by Samuel Urbain*



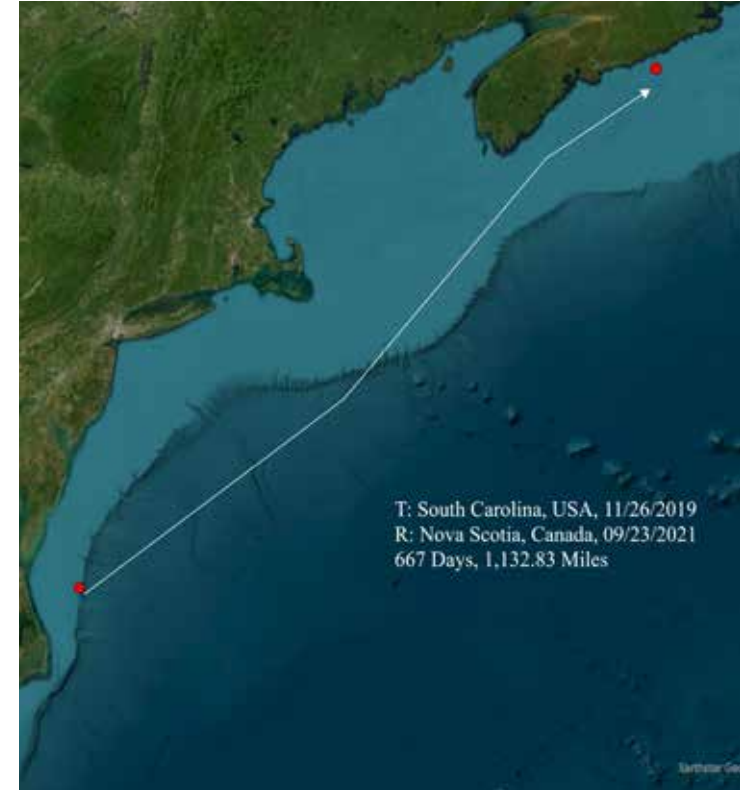
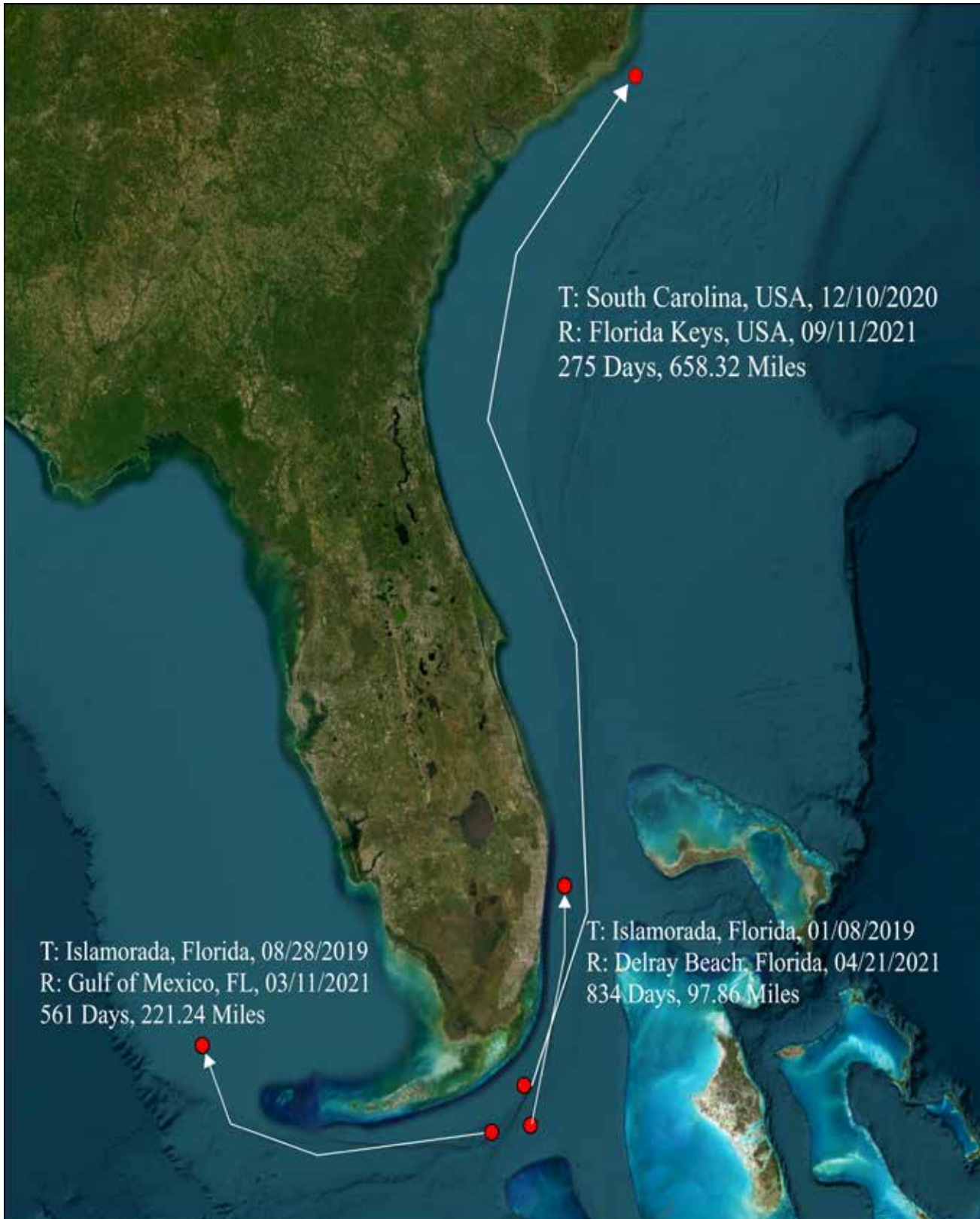


## RECAPTURES

There were 15 recorded recaptures this year for swordfish. The distribution of recaptures was remarkably spread across the Atlantic Ocean, with recaptures taking place in the tropics, Canada, the Gulf of Mexico, and even Spain! One fish in particular, originally tagged offshore of Texas, had spent almost four years at large, only to be recaptured less than 30 miles away from the initial tag location.





**SCIENTIFIC NAME*****Xiphias gladius*****FUN FACT**

**Swordfish have a unique blood vessel system that redirects blood to their brain and eyes, keeping them warmer than the rest of their body. This allows them to hunt at much deeper depths than other billfish species.**



White Marlin

**WHITE MARLIN**





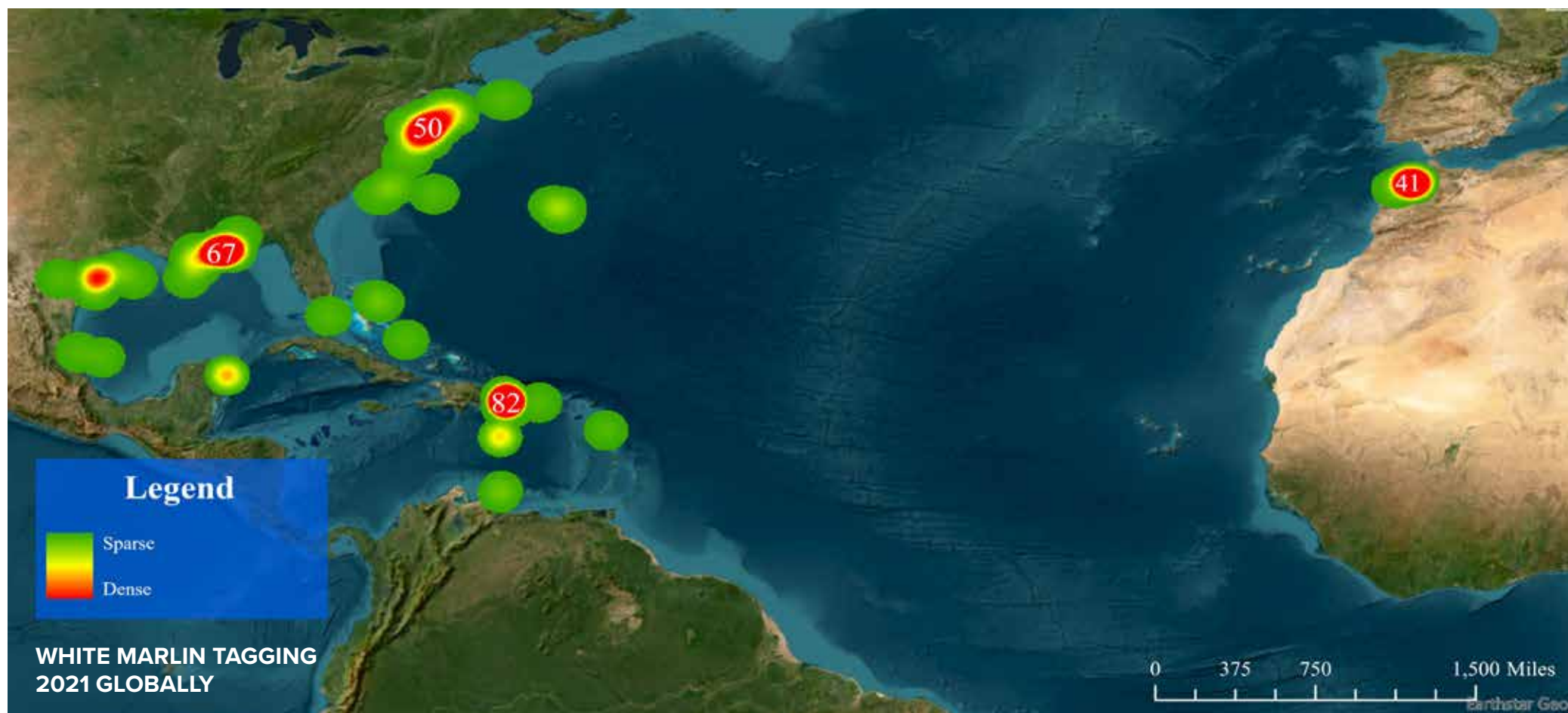
## OVERVIEW

White marlin is a species of billfish found only in the Atlantic Ocean. Most frequently targeted off the eastern coast of North America, these fish are frequently caught but infrequently tagged. White marlin are distinguishable by their rounded (rather than pointed) and spotted dorsal fins and their bright white bellies. Often, these fish are confused with roundscale spearfish (*Tetrapturus georgii*), another fish found in northern Atlantic waters. Due to this common confusion, and often unreliable identification, tags placed on roundscales and white marlin are often grouped together. White marlin can grow to great lengths,

reaching 110 inches and 180 pounds. Though they are generally regarded as large fish, white marlin are on the more slender side of billfish species.

## TAGS

This year, anglers came together to tag 285 white marlin. On average, the tagged white marlin were just over five feet in length and weighed about 60 pounds. The largest white marlin tagged this year was estimated at 115 pounds. In 2021, white marlin tags were distributed widely across many locations, compared





to 2020 when only one white marlin was tagged outside the Northwest Atlantic Ocean. A total of 52 white marlin tags were recorded in the Atlantic, with the Dominican Republic and Morocco representing high levels of tagging. Even though TBF database flourished in 2021, it is extremely important to continue expansion, especially in areas with historically lower representation such as coastal Africa and various European nations.

White marlin season occurs in the summer months of the northern hemisphere, with most of the tagging taking place from June to September. In these months, white marlin face an additional increase in targeting because of the sportfishing tournament industry. Tournaments like the Mid-Atlantic, based out of Maryland and New Jersey, have proven to be vital for us to learn more about billfish.

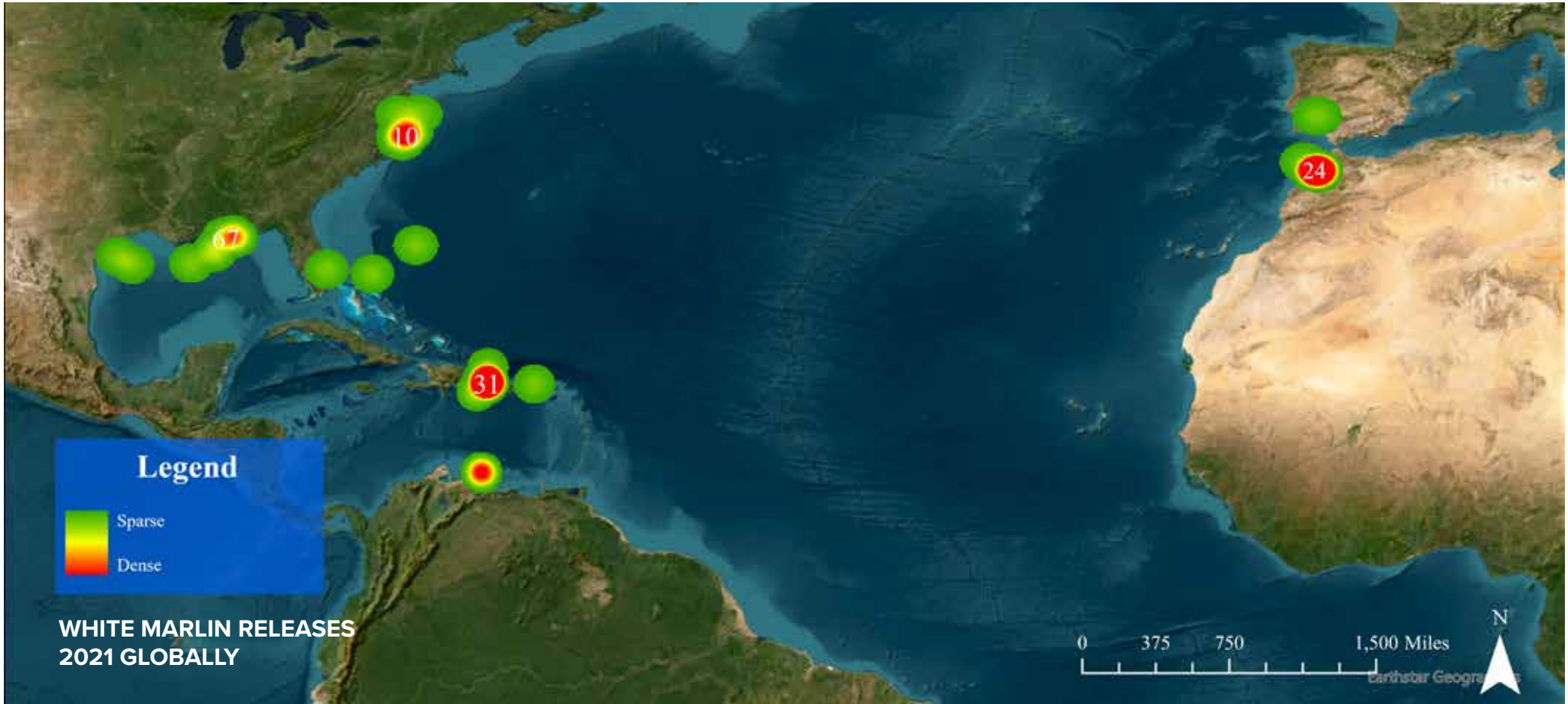
We know just the basics about billfish compared to other more popular fish species. The billfish specimens collected by research institutions at these events have contributed to us learning so much about the rare event species. These tournaments can play a huge part in understanding billfish from age and growth studies to even discovering a new species - like the roundscale spearfish!



### RELEASES

With less than 168 releases of white marlin, 2021 proved successful in lowering the ratio of tagged to released fish. Looking at the releases documented this year, it is apparent that release trends follow tagging trends, almost identically. Outside of the United States, which has a lower relative number of released white marlin, high density areas of releases took place in the Dominican Republic and Morocco. Like tagged fish, released white marlins were caught mainly between the months of June and September.





## RECAPTURES

There was only one white marlin recaptured this year. This fish was recaptured in Ocean City, Maryland, on August 14th. The fish was pulled alongside the boat with a tag on it; however, there had unfortunately been no previous record of the tag in the system. Unfortunately, there is no way to know how long the fish was at large for, or where it was originally tagged. This tag is an example of an orphan tag, and goes to show why inputting or sending in all tagging data is crucial for conservation science.

## SCIENTIFIC NAME

*Kajikia albida*

## FUN FACT

White marlin often swim demonstrating a technique called “tailing”, where they swim at the water’s surface with their dorsal fin visible above the surface.





*Photo by Austin Coit*





## IN CONCLUSION

We hope you enjoyed looking through TBF's Conservation Record, which highlights the efforts of all the crews to report their data to us. By gathering data each year, TBF can then utilize scientific and socio-economic research to show the importance of healthy billfish stocks and the impacts on recreational fishing. The Billfish Foundation works domestically and internationally with international fisheries management organizations and governments to increase conservation measures that benefit both the fish and the local communities dependent upon their survival. With each new development of sportfish tagging data, TBF's staff, scientists, and fisheries experts are able to interpret and convert this data into tangible conservation measures.

## FUTURE WORK

If you'd like to become involved in The Billfish Foundation's mission, there will be ample opportunities. Be sure to contact us on how you can be involved. Additionally, TBF will begin to hold sponsored events in 2024. These will include educational seminars focused on the importance of billfish tagging efforts and attendees will have the ability to potentially receive tagging equipment at these events. Check out our website, [www.billfish.org](http://www.billfish.org) for more information on upcoming events.



Visit TBF





To become a TBF Tagging Partner or  
for more information email [Tag@Billfish.org](mailto:Tag@Billfish.org)

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