

# **Bahamas Season Fishing Forecast for 2017:** **GREAT FISHING IN THE BAHAMAS**

By Matthew A. Upton and Mitchell A. Roffer, Ph.D.

## **Introduction:**

Since 2003 we have been developing objective methods for forecasting the overall fishing conditions during the April-June Bahamas Billfish Championship (BBC) and other important spring Bahamas tournaments. Although sadly the BBC tournaments have been canceled this year, we will continue to do these seasonal forecasts for the Bahamas fishing community and other associated tournaments and hope the BBC returns next year.

The hypothesis for forecasting the seasonal marlin fishing action stems from the location and geographic extent of the bluer and often warmer water that occurs from the Cat Island – San Salvador Island area and south to southeast where it is presumed that the marlin concentrate before, during, and after spawning. We have been calling this water “blue marlin” water. From satellite data it is relatively easy to identify this water based on its signature optical and surface water temperature characteristics. Our working hypothesis and experience have shown that the marlin are associated with this water and the more “blue marlin” water that exists in the Abaco Islands and Eleuthera Island areas, the greater the relative apparent abundance of marlin in these areas.

Also in recent years we have observed an association between this water and the yellowfin tuna action in the Bahamas, as well as, along the western side of the Gulf Stream between Jacksonville, Florida and Cape Hatteras, North Carolina. We see evidence that when more of this blue water passes northwest of Abaco to the eastern side of the Gulf Stream that a certain unknown proportion of the migratory fish move to the western side of the Gulf Stream. This brings relatively more fish to the coastal fisheries at the edges of the Gulf Stream water.

This also seems to be holding true for the canyon areas northeast to offshore of New Jersey, New York and Massachusetts when the blue water is brought to the edge of the continental shelf (100 fathoms/600 feet) starting in March or April usually by Gulf Stream eddy features. But this article is focused mainly on the blue marlin and the Bahamas area. Stay tuned to ROFFS™ for the next few weeks and into April for additional discussion related to marlin, yellowfin tuna and bigeye tuna and oceanographic conditions and seasonal fishing forecasting off the United States east coast and in the Gulf of Mexico area.

Based on our observations of the fishing action and ocean conditions in the Bahamas, particularly from Eleuthera to the Abacos over the last 20+ years it appears that excellent fishing action occurs within the Bahamas tournament areas when there is a substantial volume of the “blue marlin water” pushing over the 100 fathom (600 feet, 200 meters) and shallower ledges along the eastern side of Eleuthera and the Abacos. Relatively favorable fishing seasons occur when this water only occurs over the 500-1000 fathom depths, but does not reach the 100 fathom and shallower depths of both areas. Mediocre years occur when there is a lack of this water over these areas. Short pulses of this water bring fish into the area along with pulses of fishing action. However, unless the flow is persistent, the catch rates remain average to below average over the longer term.

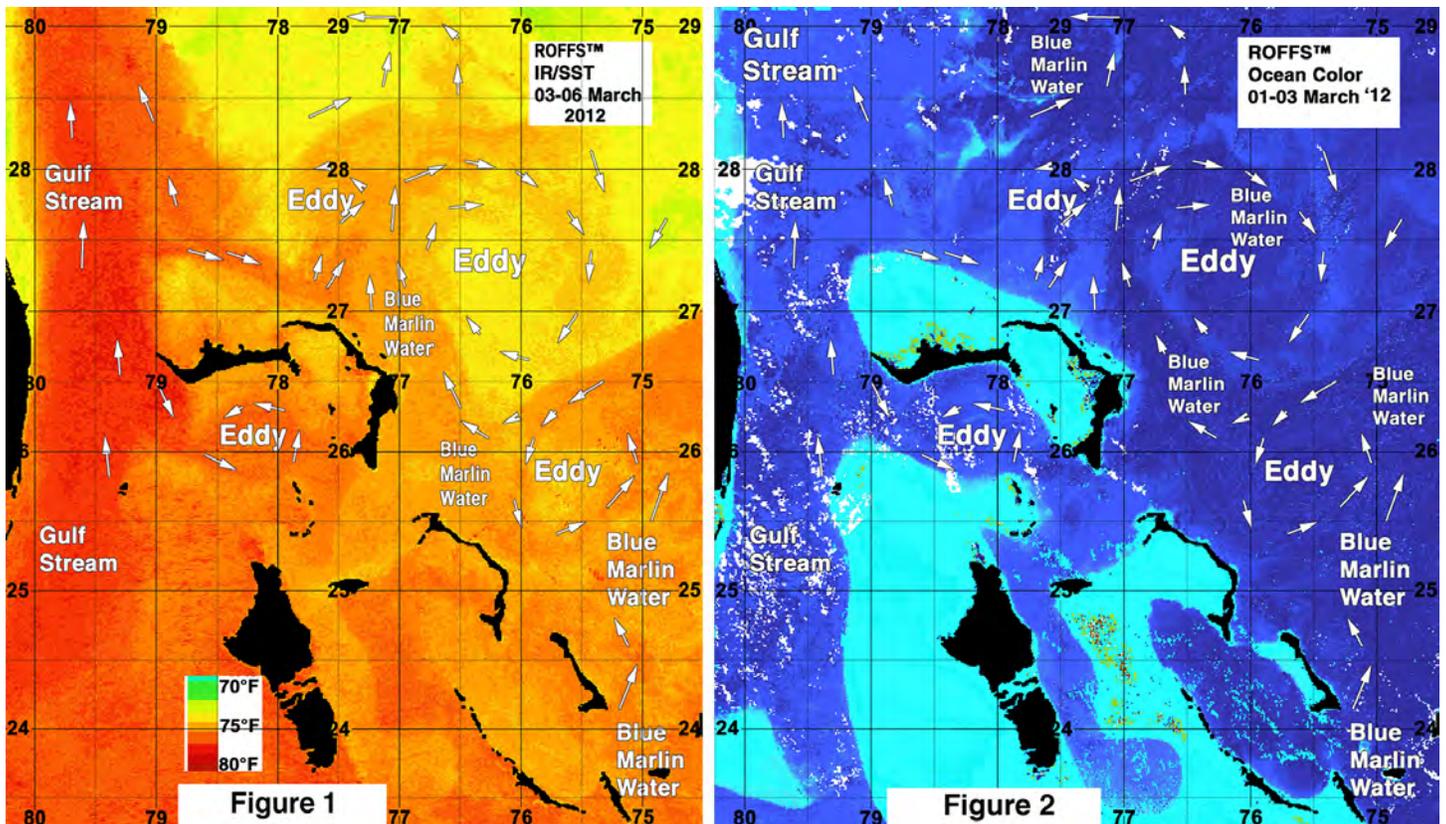
It is also important to understand that good fishing action on a daily basis is linked to the favorable direction of these currents and when the water mass boundaries of these currents are stable for consecutive days over good bottom topography that normally concentrate the bait fish. Our experience and research shows that in the Bahamas offshore areas the dissolved oxygen concentration does not appear to be a major factor at the present time compared with the temperature and clarity of the water. In other areas to the south, the dissolved oxygen has a greater controlling factor on fish distribution both vertically and horizontally. The themes of declining dissolved oxygen levels and changing pH of the oceans is something that we continue to monitor.

The working hypothesis is based on our experience using the hourly satellite observations of the ocean conditions derived by Roffer's Ocean Fishing Forecasting Service, Inc. – ROFFS™ ([www.roffs.com](http://www.roffs.com)) and catch reports provided by a variety of sources for the past 30 years. The infrared (IR) satellite data are used to observe the sea surface temperature (SST) and the ocean color data are used for indices of phytoplankton (chlorophyll), water clarity, and colorized dissolved organic material are received from a variety of sources including NASA, NOAA, Suomi National Polar-orbiting Partnership (SNPP or JPSS), and the European Space Agency (ESA) satellites.

ROFFS™ also uses data derived from drifting buoys, gliders, aircraft, private boats, and satellite altimeters. The altimeter data only provide a very coarse spatial and temporal resolution with a time delay (5-10 days to produce usable large scale circulation models) that limits the data's utility related to high resolution and real-time operational oceanography. While the ocean changes significantly over such short periods, the altimeter data can be used for an overall, albeit 5-10 day average, view of the ocean's surface circulation. It is not useful for evaluating small scale, short-term (daily and sub-daily) changes in the ocean currents or their boundaries that control the location of the fish.

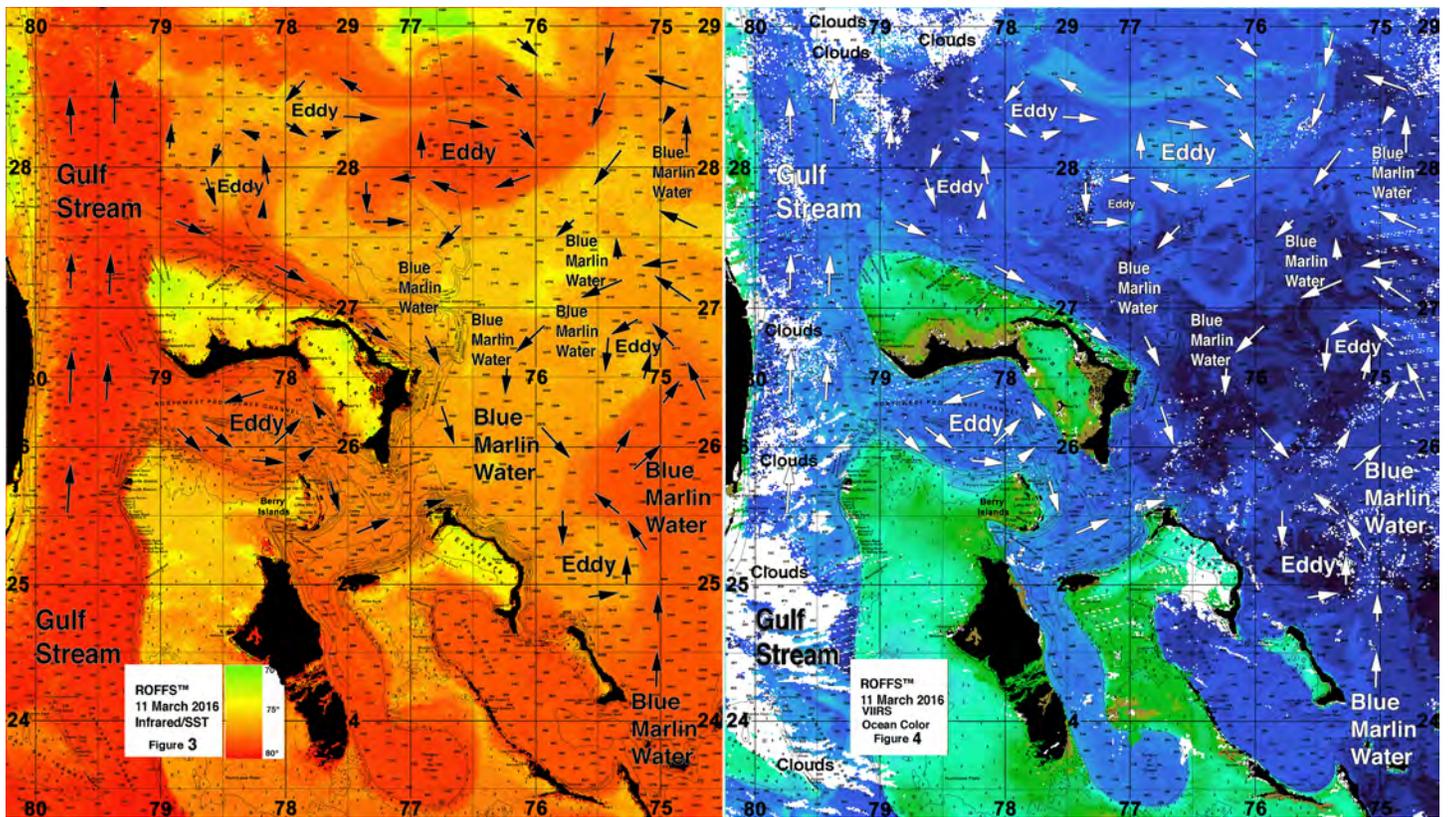
During the last several years we had observed that the conditions over the Bahamas tournament areas were particularly favorable as early as January, February and March in terms of the presence of "blue marlin" water off Abaco and Eleuthera as exemplified by 2012 conditions (Figures 1 & 2). As stated earlier, the critical aspect for having a good blue marlin season is the presence of the "blue marlin" water pushing over the 100 fathom (~ 600ft) ledge or the bank and good bottom structure and canyon areas creating persistent convergence zones for food to concentrate.

Figures 1 and 2 show the distribution of the "blue marlin" water prior to the 2012 Bahamas spring tournament season. Figure 1 was derived over the March 03-06, 2012 period using a variety of IR satellite data from NOAA, NASA, and ESA that shows the water masses based on their signature SST. Figure 2 is an ocean color image that was derived from NASA and ESA satellites over March 01-03, 2012 that shows the water masses based on their signature ocean color and chlorophyll content. Clouds prevented us from providing an exact match in time due to the clouds associated with the strong cold front that stalled over the Bahamas during this time period, as the satellites cannot observe the ocean conditions through the clouds. However, using a variety of computer techniques ROFFS™ was able to remove many of the interfering clouds to allow a one-day overlap of the imagery to provide a better comparison. The darker blue water is the "blue marlin" water.



**Figure 1:** shows an infrared (IR) derived sea surface temperature (SST) image derived using NOAA and NASA imagery over the 03-06 March 2012 period. **Figure 2:** shows an ocean color image derived over 01-03 March 2012 using NASA imagery. Arrows point the direction of currents. Important features are labeled.

During the actual 2011, 2012, 2013, 2014, 2015 and 2016 Bahamas tournament fishing seasons the “blue marlin” water existed in the tournament areas, only to be pulled away from the tournament area by the ocean currents forced by various eddy features (60-120 miles in diameter) that occurred east and northeast of Abaco. Some good fishing action happened during these years due to the intermittent arrival of the “blue marlin” water and the presumed migration of the fish through the area. For instance last year, we showed the arrival of the “blue marlin” water east of Abaco almost to the 100-500 fathom contours by mid-March (Figure 3 and 4). However, during tournament times in April, May and June most of this “blue marlin” water was pulled north and northeast, as has been the trend the past five to six years. There was a brief good pulse of warmer “blue marlin” water directly into east Abaco into the Abaco Canyon areas between May 15<sup>th</sup> and May 25<sup>th</sup> of 2016 that produced some good fishing conditions during that time but that water was short lived. Unfortunately, the favorable conditions were not persistent throughout the entire tournament season like some of the banner years in the 1990’s and early 2000’s. We do not know if this represents a circulation regime shift in the region, but only time will tell. Our experience suggests that variability is normal, but this is something that a longer term automated altimeter study could resolve.



**Figure 3:** Last year's conditions were derived from a variety of infrared sensors to get SST from NASA, NOAA, and JPSS satellites during March 11, 2016 and **Figure 4:** was derived from the ocean color/chlorophyll imagery during March 11 & 13, 2016 from the VIIRS sensors on SNPP satellite respectively. We consider this an image pair.

## Background and Some Data for 2017

Although we have learned that the actual oceanographic conditions develop from the presence, absence or mixture of the “blue marlin” water during the main tournament season, we continue to follow the tradition of preparing the forecast from the beginning of March. This allows us to gain insight into the conditions prior to the tournament season and understand the ongoing fishing success starting in March. One of the challenges of producing a such an early forecast is that these exciting, entertaining, and fun fishing events extend over a relatively long time period from April through the end of June. This year (2017) the first major Bahamas tournament starts in mid-to-late April. Conditions are likely to change significantly from one fishing event to the next without any scientifically proven and field-tested methods to predict the changes over the period from March through June. Despite what you may be reading in the non-scientific media sources, there still are no reliable numerical oceanographic models that make accurate and reliable high resolution localized oceanographic forecasts for long term fish finding applications. ROFFS™ continues to work with other oceanographers to improve, test and validate ocean and climate models, so perhaps in the future our task for the seasonal forecast will be easier.

For forecasting short-term oceanographic conditions related to finding fish, ROFFS™ believes that the conditions observed now are the ones likely to continue into the short-term future (24-48 hours)

unless we can see the mechanisms (currents or eddies) that would drive the changes. This is known as the “climatology and persistence” and technique of forecasting. While we have two crystal balls in our office for forecasting, we prefer to use real-time direct observations and we have learned that evaluating the pre-season conditions annually provides insight into future seasonal trends. Experience is our guide as we have had moderate success in forecasting seasonal trends of fishing productivity based on the location, condition, and likely future changes of the fishes’ preferred habitat in time and space for a variety of species over many areas of the world.

For the spring Bahamas tournament season we derive our first indications of the ocean conditions during the first two weeks in March. We evaluate whether or not we are observing “normal” (climatologically mean conditions) or anomalies. We rely on real time satellite data but use climate models from some of the world experts in the field. One indication is SST in the core of the Gulf Stream off Miami and the SST of the Bahamas blue marlin water east of Cat Island to east of Long Island. Because we started our forecasting studies during the first week of March in 2003 we have continued our time series using that week.

The ROFFS™ 14 year (2003-2016) mean SST for the core of the Gulf Stream off Miami is 78.4°F during our standard early to mid-March measurement period. The SST has been as low as 74.8°F (2009) to a high of 80.5°F (2007) and we have not observed any overall trends as of yet, unlike other areas such as the Gulf of Maine (increasing). Climate variability and change is not evenly distributed. This year the SST was 80.0°F in the core of the Gulf Stream off of Miami on March 09-10 (2017), which is the highest it has been since 2007. While we have not been recording the SST of the Bahamas “blue marlin” water offshore of Cat Island to Long Island as long, the nine year mean (2008 – 2016) SST for the warmer water east of Cat Island area is 76.5°F. This year the SST of the “blue marlin” water east of Cat Island/Long Island was 78.1°F during the standard early to mid-March time period. This year unlike the trend the previous two to three years, both the Gulf Stream and “blue marlin” water appear to be about 1.5°F warmer than the previous year, indicating a substantial increase from the mean SST. This increase in temperature could be due to the mild-winter conditions throughout the northern and western hemisphere and could indicate an earlier than normal arrival of marlin and various tuna species into the Bahamas region and farther north. While we have already receiving reports of an early mahi and cobia season off east Florida, great wahoo action off Charleston, SC, the BIG news is that we have been receiving reports of an early blue marlin run off Cat Island.

The global, hemispheric and especially the regional climate models provide guidance into the present and future conditions. We usually use the oceanographic models, climate data, analyses, and forecasts provided by Columbia University’s International Research Institute (IRI) for Climate and Society (<http://iri.columbia.edu>), NOAA’s Climate Prediction website (<http://www.cpc.ncep.noaa.gov>), the National Center for Atmospheric Research (NCAR <https://climatedataguide.ucar.edu/about>), as well as sage advice from our colleagues at NOAA’s Atlantic Oceanographic and Meteorological Laboratory (AOML <http://www.aoml.noaa.gov/>), the University of Miami’s Cooperative Institute for Marine and Atmospheric Studies (CIMAS <http://cimas.rsmas.miami.edu/>) and North Carolina State University (<http://omgsrv1.meas.ncsu.edu:8080/CNAMPS/atm.jsp>). We also use catch data from a variety of public and private sources. Based on the 2017 IRI multi-model probability forecast, the precipitation is expected to be the climatological mean, or what many people refer to as “normal” conditions over the April-May-June period. Air temperature is likely to be normal to slightly above

normal and SST is forecasted to be 0.1°C-1.0°C above the mean again over the Bahamas Islands area. This confirms our suggestion that the main population of marlin will not be delayed due to lower than normal water temperatures, and are likely arrive earlier than normal to the northern Bahamas area.

As we continue to monitor and learn more about air – sea interaction, climate variability and ocean-wide circulation we started considering other indices a few years ago such as the North Atlantic Oscillation (NAO) and the Atlantic Multidecadal Oscillation (AMO). Without going into great detail the NAO is the dominant mode of winter climate variability in the North Atlantic region ranging from central North America to Europe and much into Northern Asia. The NAO is a large-scale variation in atmospheric mass between the subtropical high and the polar low. The corresponding index varies from year to year, but also exhibits a tendency to remain in one phase for intervals lasting several years. The North Atlantic Oscillation (NAO) is a climatic phenomenon in the North Atlantic Ocean of fluctuations in the difference of atmospheric pressure at sea level between the Icelandic low and the Azores high. Through east-west oscillation motions of the Icelandic low and the Azores high, it controls the strength and direction of westerly winds, currents, and storm tracks across the North Atlantic Ocean. It is part of the Arctic oscillation, and varies over time with no particular periodicity. It appears to be one of the most important manifestations of climate fluctuations in the North Atlantic and surrounding humid climates (see Wikipedia and the previously listed web links for more details). The NAO 2016 index for January and February 2016 was 0.12 and 1.58 respectively, normal to above normal. This year (2017) the NAO index for January and February is 0.48 and 1.00 respectively, which is similar to last year. We are uncertain what the implications are for current velocity (speed and direction), eddy generation and movements as the effects of NAO in the Bahamas area is not obvious. Typically the NAO is more important for driving the west to east winds (westerly's) north of 30°N latitude (mostly 45°-65°N). An increase in the NAO means that the Icelandic low gets lower and the Azores high gets higher creating a stronger atmospheric gradient between the two which results in stronger winds from the west that essentially acts to cool the North Atlantic Ocean overall. A decrease suggests less wind and warming. To understand the significance to the trends in the North Atlantic Ocean SST one has to consider the entire year, as well as, several years and decades of data. This is beyond the scope of this article.

The Atlantic Multi-decadal Oscillation (AMO) has been identified by some as a coherent mode of natural variability occurring in the North Atlantic Ocean with an estimated period of 60-80 years. It is based upon the average anomalies of sea surface temperatures (SST) in the North Atlantic basin, typically over 0°- 80°N latitude. (<https://climatedataguide.ucar.edu/climate-data/atlantic-multi-decadal-oscillation-amo>). The unsmoothed AMO Index for January and February 2015 was -0.001 and 0.004 respectively. In 2016 the January and February values were 0.238 and 0.163 and in 2017 they were 0.233 and 0.234 respectively.

We have learned that the positive trend in these indices suggest a slowdown of the North Atlantic Ocean Circulation is occurring. This includes a slowing of the Gulf Stream system. The exact rate of slowing is unknown and the impact on Gulf Stream intrusion into the Gulf of Mexico (Loop Current), as well as, the resulting meanders and eddy formation is yet to be shown, although we have already observed some changes. Also a positive AMO is usually associated with an increase in the number of tropical storms that mature into hurricanes because the overall North Atlantic Ocean SST is higher (i.e., higher anomalies). This does not take into account the wind shear variability and other aspects

of tropical storm genesis. For easy to understand answers to frequently asked questions about the AMO see [http://www.aoml.noaa.gov/phod/amo\\_faq.php#faq\\_2](http://www.aoml.noaa.gov/phod/amo_faq.php#faq_2).

Regarding El Niño we have yet to see or read about any direct relationship between El Niño – La Niña and the oceanographic conditions in the Bahamas area. However, we continue to monitor the conditions closely. Presently we are entering a transition period from a La Niña to more neutral (normal) conditions during the next few months. We will continue to investigate the relationship between the North Atlantic Ocean climate and the oceanographic conditions in the Bahamas in the future. But we included this information to spark your interest in climate indices.

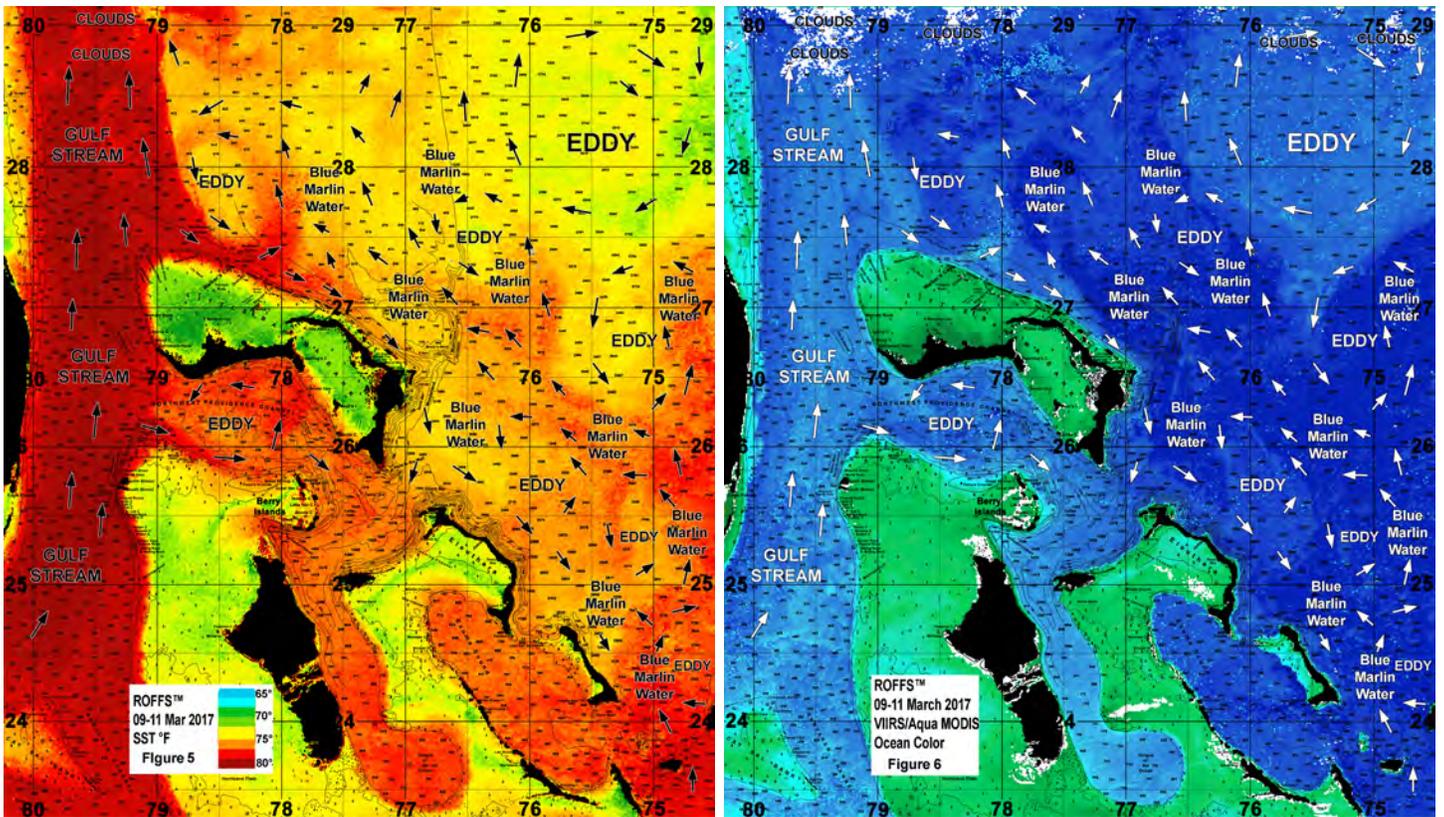
## **Nowcast Analysis**

In this section we want to discuss and show you the current oceanographic conditions (Figure 5 and Figure 6) and compare it briefly to last years conditions (Figure 3 and 4). For clarification purposes Figures 3 and 5 were derived from a variety of U.S. (NASA, NOAA, JPSS) satellites during the early to mid-March (March 09-11) period and Figures 4 and 6 were derived from the U.S. SNPP VIIRS and NASA MODIS Aqua ocean color/chlorophyll imagery during this same early to mid-March time period (March 09-11). The exact values of the original data from different satellite sensors are not the same but we cross calibrated the imagery so that the signature and values of the blue marlin water is consistent over the histories of the satellites. This is something we learned through valuable NASA Earth Science Program projects.

We could not use single and same day imagery for the SST and ocean color data due to cloud cover interference, so we used a combination of imagery and the ROFFS™ cloud reduction techniques to produce these relatively cloud-free images. However, for comparison purposes we consider these images as an equal image pair for the purposes of this discussion. Also it is important to note, that the exact same color pallets were not used from year to year (look at the color bar for reference for the SST images), but we did evaluate in more detail the overall regional SST differences manually between 2016 and 2017 for this report. While these provide a visualization of the pre-season March conditions, they also provide examples of how the eddy features are pulling the “blue marlin” in different directions. This is important for understanding the dynamics of the region. Both images for each year have the same arrows, eddy and “blue marlin” water labeling. The flow of the water was derived from our ROFFS™ sequential image analysis of Lagrangian coherent features where we study several days of satellite imagery to follow the signature water masses and their motion. An example of this years SST satellite infrared imagery in greytone can be found on the ROFFS™ YouTube™ site (<https://www.youtube.com/watch?v=IEkRPkNzJPY>) showing the flow of the water around the Bahamas region during the last two months, where the darker grey water represents the warmer water.

This year’s indicator conditions are shown in Figure 5 and 6. There are at least eight obvious influencing clockwise and counterclockwise circulations that are rotating at different speeds and drifting at different in different directions at differing rates. More than last year at this time. Due to size and space constraints we are not showing the substantial volume of the bluer “blue marlin” water farther east of Eleuthera and Cat Island here, but one can see it in the video referenced above (typically this is the warmer darker grey signature). Overall, as you can see in the ocean color image (Figure 6), there are already relatively large amounts of “blue marlin” water (indicated by the darker

blue colors) pushing in a favorable direction into the 500-1000 fathom ledges east and northeast of Abaco Islands and into the Great and Little Abaco Canyon areas for very promising early season marlin action.



**Figure 5:** This years conditions were derived from a variety of infrared sensors to get SST from NASA, NOAA, and JPSS satellites during March 09-11, 2017 and **Figure 6:** was derived from the ocean color/chlorophyll imagery during March 09-11, 2017 from the VIIRS sensors on SNPP satellite in combination with the Aqua sensor on the MODIS satellite respectively. We consider this an image pair.

Furthermore, there is a larger amount of this “blue marlin” water farther to the northwest and north of Abaco (almost to Walkers Canyon) than last year and the west to northwest push of this slightly warmer darker blue marlin water continues to push toward the Gulf Stream, which is an encouraging trend that we did not see the last few years. This could mean the arrival of earlier than normal marlin and tuna to the northern Bahamas areas and farther north within the Gulf Stream and east coast United States areas.

Overall there are three main eddies of interest and to continue to monitor. The first eddy is the counter-clockwise eddy centered east-northeast of Eleuthera centered near 75°50’W & 25°40-45’N that is currently pulling “blue marlin” water into the 1000-2000 fathom contour depths east of Abaco and then south toward Harbour Island and northern Eleuthera for good conditions. The second eddy is the smaller, counter-clockwise rotating eddy centered farther east of Eleuthera near 75°10’W & 25°15-20’N. If these two eddies remain relatively stable or move northward to northwestward it will continue to provide GOOD conditions by pulling the “blue marlin” water closer to the coasts of Eleuthera to and Abaco Islands for good to excellent April and May fishing. However, if these eddies

drift more northward to northeastward then the conditions may not be as favorable keeping the “blue marlin” water farther offshore.

The third and possibly MOST IMPORTANT eddy to keep an eye on is the larger clockwise rotating more dominant eddy that is centered well northeast of Abaco near 75°30'W & 28°15'N. We have already observed that this larger eddy is currently drifting in a southward to south-southwestward favorable direction. If it continues along this path we expect it to continue to pull the favorable “blue marlin” water into the Abaco to Eleuthera coastal areas including the tournament areas for better than normal marlin conditions and good catch rates for April and likely to provide an abundance of fish to provide good fishing into May and even June. However, if this larger eddy starts to drift westward or northwestward as is normal for the spring season, it may pull with it the better “blue marlin” water farther north and out of the region. So it remains to be seen what will happen.

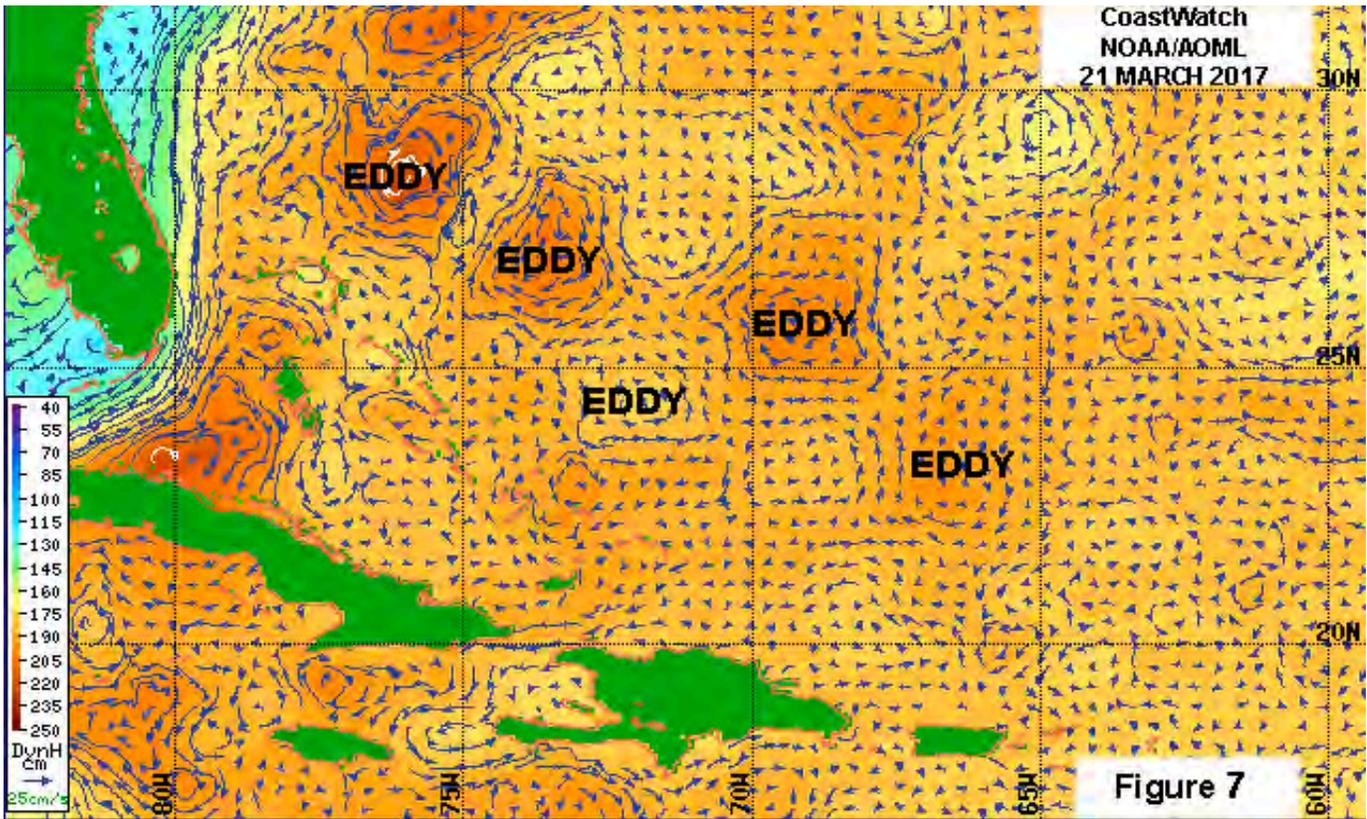
The ocean color image shows darker blue water compared with the Gulf Stream water. The darkest blue water in Figure 6 shows the water that most likely has the greatest abundance of the marlin and is obviously a darker blue than the Gulf Stream water along the Florida east coast and water south of Grand Bahama Island. Presently this water has been bringing the early arrival white marlin, blue marlin, and yellowfin tuna, which have been caught in the Bahamas area in recent weeks. The SST of the “blue marlin” water ranges between 74.5°F to 78.6°F right now and as you can see in Figure 5 and 6, there is plenty of “blue marlin” water directly east of Cat Island, east of southern Eleuthera Island (almost directly over the bank) and also east and north of Abaco over the 500-1000 fathom depths.

As the water warms in the coming weeks and as these eddies east of Eleuthera moves northward, we anticipate that a substantial amount marlin and tuna will continue to arrive. These present conditions are considered good to excellent pre-season conditions, which is promising for the next month or two. Our hope for the Bahamas marlin fishing action is that while the SST is warmer than usual that these fish and conditions will remain favorable into June. However, one should note that there is also a possibility that by June the majority of these fish will be migrating farther northward earlier this year if their habitat becomes unfavorably warm around the Bahamas region. ROFFS™ will be monitoring these and other conditions that develop over the next several weeks and months as we do in other areas.

When considering the likely influences over the next several weeks to months, we look downstream (east to southeast) for larger eddy features. From the NOAA/AOML CoastWatch altimeter image in Figure 7, there are at least five relatively large eddy features (four of them clockwise rotating) that occur from the previously mentioned area relatively far east of Eleuthera and Cat Island, north of the Turks and Caicos and north of Puerto Rico and Hispaniola. While we continue to work with researchers that forecast eddy motion, we do not know of any reliable oceanographic models that would allow us to make accurate and reliable forecasts of the motion of these eddy features. The path, size, shape and velocities of these features are highly dynamic and the flow is complex, non-linear with interacting components.

Based on our experience we anticipate that these eddy features will be approaching the eastern to northern Bahamas and tournament areas by mid to late spring. But it remains to be seen if they will come close enough to bring in the bluer water and fish closer to the Bahamas or pull the warmer,

bluer water away. This altimeter image is used as a convenience and for observing the 5-10 day estimate of the positions of the other eddies downstream in the Bahamas. However, one should remember that all such altimeter images are derived from typically 5-10 days of satellite data as we have discussed previously. Real-time infrared and ocean color satellite data provide more accurate and near real time information on the location of water masses and their boundaries that critically effect the distribution and relative abundance of the fish.



**Figure 7:** Altimeter based currents derived for March 21, 2017. Five of the main eddy features are outlined. See (<http://www.aoml.noaa.gov/phod/dataphod/work/trinanes/INTERFACE/index.html>) for this data.

## Conclusion

Based on what we have been observing over the last several weeks, the present ocean conditions for marlin and tuna action in the Bahamas region, particularly in the eastern to northern Bahamas, look **very good**. Compared to last year the conditions this March look **better** for early fishing action and into the spring season. Furthermore, due to the increased SST we think the arrival of the blue marlin, yellowfin tuna and other pelagics will likely be earlier than normal. In fact, these March 2017 conditions looks like the **best early season conditions we have seen in a decade** in the Bahamas area and the ocean conditions are in place for the potential to continue these good fishing conditions into the April and May fishing season. We will continue monitoring these developments as the season progresses and will provide updates when possible. These updates are also important for the marlin and tuna fisheries for offshore of South Carolina to North Carolina to New Jersey to Massachusetts as spring transitions to summer. Additionally, we have already received a few recent reliable fishing

reports of good early season blue marlin action off of Cat Island along with wahoo and mahi action off of Abaco. This confirms our prediction for earlier than normal good fishing action in the eastern to northern Bahamas.

It is very important to note that good fishing action on a daily basis is strongly linked to local, short-term (days) current conditions that concentrate the fish once the preferred habitat of the fish are in a particular region. When the water mass boundaries of these currents are geographically stable and favorable, i.e., persistently pushing over "good" bottom topography such as Little Abaco Canyon, then they concentrate the baitfish and larger fish can be found foraging. This means that the fishing action on any given day is controlled by relatively short term (hourly to daily) and relatively small scale (1-5 mile) movements of the currents and their water mass boundaries. Our experience indicates that to reliably forecast specific concentrations of fish on a daily basis one must evaluate the ocean conditions on these scales. Relatively small subtle changes in the currents and their boundaries often have dramatic effects on the distribution and concentration of fish. Contact ROFFS™ for these daily detailed fishing forecasting analyses and get the inside track to where the better conditions are tomorrow. Get ready now for the good spring Bahamas tournaments and other fun fishing action as the good fishing action the Bahamas region is starting already.

Safe and Successful Fishing from ROFFS™