

Hooked

The Variables of Atlantic Striped Bass Fishing

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When something happens that humans can't understand, they have a couple of explanations: God and luck. From an atheist's perspective, God doesn't exist. From a scientist's perspective, neither does luck. Luck is a word that almost every fisherman* has used to describe why he didn't catch anything. The truth is luck doesn't exist, or at least not in the way most people think. Fishing is a sport that can be a lot more scientific than it seems. By paying attention to some key variables, you can increase the probability of catching fish. Luck is commonly interpreted as the reason for an outcome. On a day that the water temperature is eighty degrees and no fish are caught, luck is not the reason for not catching anything. The reason is because striped bass can't tolerate water that is that hot. The reason the water is so hot is because of variables like air temperature, sediment composition, current, and depth. You could go out fishing one day having checked all the variables under your control and there is still a chance you won't catch something. As you will see, the reason is because there are infinite variables that you can't account for. For example, a leaf that fell two minutes earlier might have scared the fish that you would have caught.

In this paper, I will describe the striped bass and its life. I will also highlight key variables that impact the probability of catching striped bass. These variables are divided into five categories: weather, time, water, technique, and location. What you will find is that most if not all of these variables are related. By understanding variables, fishermen can catch more or bigger fish and explore this whole other world underwater and its fascinating inhabitants.



The striped bass

The Atlantic striped bass (*Morone saxatilis*) is a prized game fish found from the St. Lawrence River in Canada down into the Gulf of Mexico to approximately Louisiana. The striped bass is also called: Atlantic striped bass, striper, linesider, rock, or rockfish. The striper is the state fish of Maryland, Rhode Island, South Carolina; and the state saltwater fish of New York, New Jersey, Virginia, and New Hampshire (Wikipedia, Striped Bass). The striper's body is a long sleek muscular shape. It has gills like any other fish. Down its sides are 7-8 stripes. The striped bass is an anadromous fish; this means that it lives in saltwater but travels to bodies

of freshwater to breed. The largest striped bass ever taken by angling was 81.88-lbs. Now, sadly, striped bass this size no longer inhabit our world's oceans. Due to the human race's sheer neglect of our planet, most of our world's water is polluted to some extent.

Striped bass have almost gone extinct. In the early 1980's Striped bass were almost impossible to catch. Then, the Atlantic States Marine Fisheries Commission made a conservation plan. They made laws to limit the amount of fish people can take and made more hatcheries. In 1995 the population was declared restored. That doesn't mean that striped bass are having an easy time; some water is so polluted that they can't use any senses but hearing. The fisheries cleaned up our mess once, but if we keep up with pollution, then there isn't much hope for earth's fish. Below are two pictures of pollution.



Above, I refer to this as “our mess” because although some of us have more to do with pollution than others, it is everybody's problem. We will only start to turn our ocean's health around if everybody pitches in. For now, striped bass are very plentiful and striped bass fishing is done all over. Fishing for stripers is challenging but also very exciting, especially when a big one is caught.

Striped bass life

The striped bass's life begins when it is born out of an egg in a river. According to aquariusportfishing.com, spawning takes place from the spring to early summer, the greatest activity occurs when the water warms to about 65 degrees F. The eggs drift in currents until they hatch 1 ½ to 3 days after being fertilized. From the

second it is laid as an egg and all the way until the end of its life, the bass struggles to survive. It is obviously more vulnerable when it is a larvae, but it, like most other fish, is in constant danger. Because newly hatched larvae are helpless, striped bass suffer their highest rate of mortality during the weeks after hatching. (aquariusportfishing.com). The striped bass is alive but isn't mobile and has no worldly experience. The small egg does not realize the danger it is in. The egg could be eaten, crushed, or bashed. It could even wash up on the shore. The egg will be lucky if it ever gets to emerge into our world or makes it past the larvae stage. As soon as the bass is born out of the egg, the small fish starts to find food. It eats anything it can find. Then, it travels down river to an estuary or other body of freshwater. In its early years the striped bass lives as a schooling species. Once it has lived there for a couple of years eating and learning the ways of survival, the striped bass will swim to the ocean where it will live most of its adult life. Striped bass eat eels, shad, herring, squid, crabs, bloodworms, mackerel and pretty much everything else it can fit in its mouth (striperspace.com). Throughout its life the striped bass will travel each year up river and lay its eggs. That is the basic life cycle of the striped bass.



Weather

The variable that is the least controllable is weather. Weather is something that is considered by almost every fisherman because if the weather isn't good for fishing then the chances of catching a fish decrease dramatically. It is a very important variable.

I'm Winded: wind is a critical factor in fishing. The wind impacts the movement of water. The way the water is moving is a combination of tide and wind. When fishing in an estuary, the wind can sometimes trap water inside. This happens when the wind is going towards the estuary and it is stronger than the current of the water. When take the wind into account, it's important to remember that wind is constantly changing. The wind at one moment is not always an accurate portrayal of the wind direction or speed that has been taking place in the last few hours. The best way to predict the general location of bait is to look at the wind the day before. In general, which direction was it going? Was it strong wind or just a breeze? Some fishermen

say that they want to get a day when everything is moving because fish bite more when there is movement in the water. Fred Jennings, a fly fisherman, likes a windless day with cloud cover and a light drizzle. He says that a little rain can increase feeding. Some bait fish, if large enough, will swim against the wind. When trying to fish for a larger fish that will prey on bigger bait fish, it's important to fish upwind. "Wind can also push bait up against beaches, sandbars, rock piles and other structures that can provide a bass as an opportunistic feeder with an easy meal," says experienced charter fisherman John Jinishian. Bait should be moving around and the water should not be still. This is because when the water is moving, bait is being turned up and bigger fish are more likely to be feeding nearby.

Aren't you tempted: a variable that is not so important but makes a difference is air temperature. Air temperature, like many of the other variables, is intertwined with a more important variable: water temperature. Because striped bass spend approximately 0% of their lives outside of the water (besides jumping out of the water during a feeding frenzy), the air temperature doesn't directly affect the probability of catching striped bass. It does indirectly affect it though. Air temperature goes "hand in hand" with water temperature. On a really hot day the water is warmer. You can experience this by taking a glass of cold water and placing it in a room. The water will eventually become the temperature of the air. Although air temperature doesn't need to be checked, it is a variable that makes a difference. Every variable makes a difference!

Sun or rain: a variable that is important but also does not have a very clear answer is general weather. Sun or rain? Fishermen have different opinions. Some variables such as *time* are more agreed upon, but weather is a matter of opinion. Some fishermen like Bob Hines (an experienced fly and surf fisherman who has done a lot of fishing for stripers) prefer a rainy day, "I like a day when it's nasty and gross out." He likes this kind of weather because according to him, the fish bite more when there is rain and extreme weather. Others like an overcast day because there is no sun and the fish tend to swim deeper when it is brighter out. The one thing that is unanimously agreed upon is that a sunny day is not very good. Striped bass tend to swim deeper when it is bright out. I will explore this further in *time of day*.



Time

Time is a crucial variable. It is a variable that is easy to control. Fishermen want to use every variable they can control to their advantage. I'll try to explain it in a timely manner.

The best time of year: time of year is a "clear cut" variable; there is no grey area. Striped bass are a migratory species. This means that they move to different locations according to the season. "Both the Chesapeake and Hudson river fish typically have completed their migrations by December and will not come back into the eastern waters until the early spring. Resident fish will winter in spawn in smaller rivers up and down the eastern seaboard as well," explains John Jinishian. Striped bass migrate to freshwater in the spring and late winter. They migrate to one of the four major spawning grounds (the Hudson river, the Delaware river, the Chesapeake bay, and the Roanoke river). In summer they swim north reaching New England. Then, in fall they swim back down to Virginia and North Carolina. It's really important to pay attention to this variable because there is sometimes an odd striped bass somewhere where it shouldn't be but, it's unlikely. Find where to go based on what time of year it is and the chances of catching a fish have increased a lot.

A timely manner: time of day is a variable that is widely debated. The "prime time" varies throughout the year but, it's safe to say that dawn and dusk are always the best times. "There is not a formula that says bass will not eat in high sun midday in the summer, but typically the most productive times are during low light hours," says John Jinishian. Bass swim deeper in the daytime; there are a lot of different explanations of why. Some fishermen like John Jinishian say that the reason they swim down in the day is because they cannot see as well in low light and are more easily fooled.

Striped bass have eyes like human eyes. they have rods and cones. Most other fish only have cone cells which are used to see in the daytime so they become inactive at night. The striped bass have both so they hunt all through the night. It is near sighted because the lenses on the eye are round not flat. Eyes are most important when they are actually going in for the kill. They use other senses and their lateral lines to find the prey. Others would argue that day is not as good because of the striped bass's lack of eyelids. The light is too much so the stripers swim down. Some fly fishermen like Mike Rice say that there isn't necessarily a preferable time to fish for stripers. He says that fishermen should adjust the color of their flies or lures. On bright days they want a bright fly. On overcast days they

should use a darker fly. When fishing, it's important to match fly color with light so fish can see it easier. The sun is very bright so the only way to get the a fish's attention is to make a bright fly. Either way, most fishermen are in consensus that fishing is better when there is less or no light.

“Every fisherman knows that the best fishing times are when the fish are feeding. This tends to be during dawn and dusk, but what often goes unnoticed are the two periods elsewhere in the day--moonrise and moonset.”

(MoonConnection.com) A variable that is linked with tide is moon phases. Moon phases are important because they directly affect tide. Mike Anderson is an avid outdoorsman who has had great success fishing by moon phase. He says that it's really not complicated. The fisherman just has to figure out the exact time that the sun and moon will rise and set in the area that he plans to fish. Then, he fishes sometime in the 90 minute period (45 minutes before or after) surrounding said sunrise, sunset, moonset, or moonrise. According to his studies, Mike experienced the best fishing when he fished during these times.

A practice for the patient: The most obvious but still important variable is the length of time that a fisherman actually spend fishing. Many people have very little patience and after five minutes they decide they won't catch anything and leave. Some fishermen approach fishing as a game. A silent competition between the fishing and the fish. The fisherman must outsmart it. But when he is competing with one of the most cunning fish in the game it's important have to take time. It's delayed gratification. Fishing may seem like a easy sport but it takes an expert to stand holding his rod, blindly maneuvering their bait enticing a fish for six hours. That's what makes fishing a practice that can only be done successfully by the people who love it.

Water

Water is an important variable. What's the temperature of the water? Is the water clean enough for fish? Is the water still or moving? Is it saltwater or freshwater? These are all questions fishermen must ask themselves.

Water Temper: water temperature is very important. If the water is too cold or hot, stripers won't bite. The prime temperature for striped bass is 55°-68° F. Any water warmer than 75° or colder than 45° is not a good place to find striped bass. This

does not, however, mean that people do not catch fish when the water is too cold or too hot. People have had great success fishing when there was still ice in the water. The reason fishermen want to try if possible to fish when the water is in this 55°-68° F range is because if it is too cold, then the fish tend to swim down. If it is too hot, then the fish tend to be sluggish and won't even bite a perfectly presented piece of bait (striperspace.com).

Tide in a knot: tide is the most considered and most important variable. Tide is also a matter of opinion. It depends on what fishing technique is being used but usually fishermen want moving water. "It is important that it is neither full high or dead low, but somewhere in-between where the current is pushing bait around" says John Jinishian. Jaime Boyle, an experienced fly/spin fisherman says that he doesn't like the fast tides and prefers the end of tides. According to him, fly fishing is usually better when the water is a little slower. Bob Hines, another experienced fly fisherman, says that tide is very important and is best when it is running across structure because that's when fish become active. Tide is a variable that I will leave open for debate.

Technique

Reel Live Debait: a commonly asked question is what bait to use. Artificial? Live? Scott Caras (an experienced charter fisherman) says that finding the correct bait has been hard especially in the last couple years because the bait has not been as plentiful. Personally I think that live bait is the best. Striped bass can sense prey through their lateral lines (John Jinishian). They also have a good sense of smell. I think that when fishermen use real live bait they aren't having to fake anything. This means there's no way that a fish will question if it's real because it is. The striped bass doesn't have to be tricked because the fisherman isn't using a metal fake silver side, they are using the real deal.

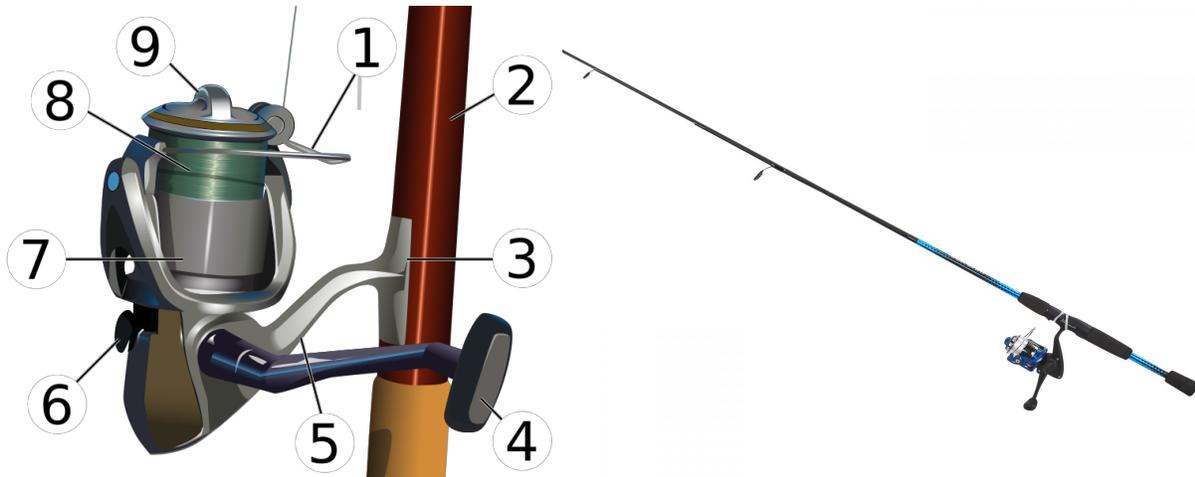
Fishermen have different ideas of what the best bait for striped bass is. Striped bass will eat squid, bunker, sandworms, sand eels, herring, butterfish, bay anchovies, cinderworms, bluefish, and crabs (John Jinishian). According to aquariussportfishing.com, striped bass will eat alewives, flounder, sea herring, menhaden, mummichogs, sand lance, silver hake, tomcod, smelt, silversides, and eels, as well as lobsters, crabs, soft clams, small mussels, annelids (sea worms),

and squid. It's important to look at time of year and what the bass are currently eating and pick a good bait.

Presentation of bait: the presentation of bait really matters and ties in with time of day. Presenting bait correctly is beyond important, it is essential. The bait's color has to match the time of day and weather. If it is sunny out, then a shiny fly, lure, or bait is good. This is because the intent is to get the fish's attention and on a sunny day the lure is competing with the sun. On a more overcast day, it's ok to tone it down a little because there isn't any competition. Also speed of bait is important. It's important not to reel too fast or too slow. That's something fishermen experiment with. In addition, the location that the fisherman casts his bait is crucial. Depending on tide and other variables, it's important to cast in a spot that is where the fish are feeding. When surfcasting that is over what is called a hole; a place in the surf where there is a dip in the sand in which fish hang out and seek out a meal above. Success is best found when the fisherman uses his knowledge of the area and current conditions to optimize bites.

Reel technique: a variable that is always in a fisherman's control is the technique he uses. There are lots of different fishing techniques and which one he uses is his choice. One isn't necessarily better than another but some are certainly harder. The techniques I will talk about are: spin fishing and fly fishing as well as some sub categories such as: trolling, spear fishing, surf casting. Most of my knowledge of different fishing techniques is from the book: Hook, Line, and Seeker by Jim Arnosky.

Spin fishing: spin fishing (the most common method) involves using a reel and a long bendable rod. It is the technique that can cast the farthest. Below there is a diagram of a spinning reel. Personally I prefer a heavy spin fishing outfit with 50 lb test line. I feel in control and don't have to worry about my line breaking if I hook a big fish.



(http://en.wikipedia.org/wiki/Fishing_reel)

Big 5 Sporting Goods

1: Pick up or bail 2: Reel seat 3: Reel foot 4: Handle 5: Support arm 6: Anti-reverse lever 7: Skirted spool 8: Fishing line 9: Drag adjustment knob (http://en.wikipedia.org/wiki/Fishing_reel)

Fly fishing: fly fishing is definitely the most challenging as well as visually interesting form of fishing. It involves a longer and very flexible rod with a circular reel loaded with thick heavy line. The reason the line is so heavy is because it is covered in a tube of plastic. Only the last few feet of line is regular clear line. Fly fishing involves using the weight of the fly line in order to cast. Fly fishermen start by swinging their rod behind them, with the rod goes some of the line. Then, they swing it out over the water letting out more line each time they change the rods direction. The fisherman keeps swinging his rod back behind him and back in front of him. Finally when he is satisfied with the length of the cast, he lets it all go in one final real cast.

Surfcasting: this method involves a long rod that is not brittle but is stronger and less flimsy than a fly rod, as well as a spinning reel loaded with strong line. Surf fishermen use their large spinning reels and powerful rods to throw a live eel, plug, or other kind of bait they are fishing with, far over the water. This method doesn't get to the fish by using line weight (fly fishing) or a boat (trolling). It gets there by sheer force. Because the water is moving it's a very reliable way to catch stripers.

Trolling: fishermen use a short solid stiff rod and a large reel filled with very strong line or wire. The technique involves putting the rod in a rocket launcher (a device on a boat that holds a fishing rod) or holding it and letting the line off the back of a moving boat. Next, the fisherman lets out a lot of line (500 feet or more) and then, he just lets it pull behind the slow moving boat that's going around 4 knots (1 knot

is about 1.15 mph). This is a good method because there isn't the work of casting and reeling. The boat does all the work. The reason the boat should not go any faster than 4 knots when trolling is because stripers, unlike bluefish are not willing to swim hard and chase bait. They prefer an easy opportunity to open their cavernous mouths and pull in an easy meal.

Chumming: chumming is a tactic used by fishermen in a boat. It is mostly used by charter fishermen (people who get paid to take individuals out and catch them fish) They use the method because it is the most reliable way to fish. When fishermen chum they are almost guaranteed a catch. When fishing as a job, customers just want action. If they don't catch fish, then they will never come again and the charter fisherman gets a bad reputation. Chumming is when fishermen take dead pieces of fish (a whole cooler of dead fish) and throw it over the side piece by piece. The fisherman keeps a steady stream of bait going into the water. Soon every fish within a mile smells it and swims as fast as it can to the boat. It starts a frenzy of fish just thrashing about eating as much food as possible. Then, the charter fisherman gives his customers a rig with the same bait that is below the boat but this one has a hook in it. They just add it to the mass of bait in the water soon a fish has taken it.

Spearfishing: there are other kinds of fishing such as spearfishing. Although spearfishing is no longer used, it used to be the main way to fish. Many Native American tribes used four or 5 pronged spears to stab all kinds of fish.

Gillnet: there is a net used to catch massive amount of stripers called a gillnet. Stripers swim into the large holes in the net. Then, it is too small for their whole body to fit in so they try to back out and their gill gets stuck. These nets are reliable and always bring in fish. Gillnets can haul in massive amounts of fish. Gillnets and commercial fishermen are the reason that the striped bass could at any moment rapidly decline to extinction.

Location

The final variable is location. Where to fish? This ties in with every other variable. The answer is, fish in the place where the most variables add up. If it is the correct time of year in one area but in another area it is the correct temperature, wind, tide, and time of year, then it makes more sense to pick the second. In addition when fishing for striped bass, it's important to fish in an area where striped bass can live.

I hope that you will look at fishing differently now, as less of a boring sport and more of a interesting science. When something happens that I can't understand I have one explanation. Variables. In striped bass fishing and fishing in general, there is no luck factor. There is no excuse as to why you didn't catch anything. Checking the water temperature, picking a good day etc. and catching a fish is divided into infinite variables. From things as important as where you are, to things as small as a couple degrees. I have narrowed it down to five variables: weather, time, water, technique, and location. Try using them. Develop your own opinion. Line up your preferred variables, play your cards right,

catch the fish before the fish catches you...

*I would like to acknowledge that I have written "fishermen" each time because "fisherpeople" or "fishermen/fisherwomen" would be cumbersome. Bear in mind that when I say fishermen I mean it as merely a term for people who practice the art of fishing.

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