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Fishing by the Barometer

Find out how barometric pressure influences fish behavior in your neighborhood!



Every angler knows that tide, water temperature, light level and moon phase can affect our fishing success, but there's another factor that often goes overlooked. Although barometric pressure can't be predicted as accurately as the other elements just mentioned, it has a major influence on fish behavior.

Think about it. How many times have you enjoyed a red-hot bite before an approaching storm or frontal system, or watched the action mysteriously shut down upon the arrival of bad weather? And how many days did it take for the fish to turn back on after the passage of that storm or front?

An approaching front can have a dramatic affect on fish behavior. Some experts believe that certain species will feed heavily near the surface just before the drop in barometric pressure, which causes them to seek deeper water.

What Is Barometric Pressure?

According to Dr. Stephen Baig, an oceanographer at NOAA's Hurricane Center in Miami, barometric pressure is defined as the weight or mass of an entire air column on a unit of surface area at sea level. It is instrumental in weather observations, since its fluctuation indicates the movement of weather fronts and systems.

Liquid mercury (Hg) is commonly used in a barometer to measure air-pressure changes in inches (in.). "Imagine a U-shaped tube," says Dr.

Baig. "At one end is liquid mercury, whereas the other end is open to the atmosphere. When the air pressure rises, it pushes the mercury higher. When the air pressure drops, so does the mercury level."

Atmospheric pressure can also be measured in millibars (mb), with a "bar" being roughly equivalent to one atmosphere of pressure (one atmosphere equals 1.01325 bars). One bar is equivalent to 29.6 in. Hg.

A barometer reading of 30 inches (Hg) is considered normal. Strong high pressure could register as high as 30.70 inches, whereas low pressure

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Fish with large swim bladders, such as striped bass, may experience discomfort during periods of low pressure, causing them to lay low and limit activity until high pressure returns. This could explain the famous “east is least” wind phenomenon experienced by bass fishermen.

associated with a hurricane can dip below 27.30 inches (Hurricane Andrew had a measured surface pressure of 27.23 just before its landfall in Miami Dade County).

According to Dr. Baig, a barometer reading of 30.71 (1040 millibars) is a typical winter reading for a high-pressure, cold-air cell moving out of northern Canada, compared to the typical average annual pressure of 29.7 (1013 millibars) in Miami.

As a very general rule, approaching weather systems — such as cold and warm fronts, tropical waves and rain — are usually associated with low atmospheric pressure. Conversely, high atmospheric pressure usually arrives after the passage of such a weather system. When high pressure settles over an area, it often means bright days and relatively calm seas.

Affects on Fish

All this is very interesting, of course, but how does barometric pressure affect fish? To find out, I consulted

Spud Woodward, Assistant Director for the Georgia Department of Natural Resources Coastal Resources Division and an avid king mackerel and red drum fisherman. While Woodward admits that there’s no definitive answer for how a rising or falling barometer affects fish behavior, he has some thoughts based on his decades of marine research and some 15 years of tournament fishing.

According to Woodward, a fish senses pressure changes through its air bladder, and well in advance of humans. “Fish that have small air bladders, such as kings, Spanish mackerel, wahoo and dolphin, aren’t as affected by barometric changes as those with large bladders, such as trout, redbfish, tarpon, grouper and snapper,” he says. “That’s because fish with small bladders have a body density that’s closer to that of the surrounding water. They don’t sense the pressure changes as dramatically, so their comfort levels aren’t drastically altered. However, many

things they eat have air bladders, and that alone could have a big impact on where you might find them and how they’ll behave.

“Fish with large bladders quickly sense when the air pressure is dropping, because there’s less pressure on their bladder. And when there’s less pressure squeezing their bladders, the bladders expand a bit. When their bladders expand, fish become uncomfortable. They relieve their discomfort by moving lower in the water column or by absorbing extra gas in their bladders. Because of the anatomical and physiological

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stresses exerted on them, they're not worried about eating. They're more concerned with trying to find a depth where they can stabilize their bladder pressure and feel good. Some species will settle to the bottom and ride out the change near structure.

Fortunately for the fish — and fishermen — low pressure doesn't usually last long."

Low Means Slow

According to Woodward, fish are much more comfortable when there's stable high pressure, and tend to feed actively most anywhere within the water column. He also acknowledges the general cycles of high and low pressure and how fish react to them. "Let's say we're experiencing a prolonged period of high pressure and the fishing has been good. Then a cold front heads our way. Ahead of the front is low pressure. The fish can sense that the barometer is about to drop. So, right before the high begins to dissipate and the barometer falls,

the fish respond with a change in feeding patterns. They'll often feed heavily right before the pressure drops. As it does, they become more uncomfortable and feed less aggressively. When the front passes and high pressure moves back in, the fish may not feed aggressively for at least 24 hours, since they're still adjusting.

"However, it's a different story a day or two after a high settles back in. The fish will have had time to stabilize and an intense bite can occur. When the pressure changes again, such as when another front moves in, the cycle repeats itself."

When the barometer sinks below 30 inches off his home coast of Georgia, Woodward doesn't bother fishing for big kings in less than 70 feet of water, even if the fishing had been good in previous days. Instead, he fishes farther offshore, in deeper water, where he believes the pressure change may be less pronounced and the kings less affected than those closer to shore. He also recognizes

that the fish may be holding deeper in the water column during this period, and that he may have to experiment with the depth of his baits to score.

As Woodward mentioned, baitfish are also affected by barometric pressure. For example, falling pressure may force the bait to hold deeper and become less active, which would impact the fishing in the middle and upper levels of the water column

Bass by the Barometer

In New Jersey, Captain Terry Sullivan experiences similar behavior with striped bass. "There's nothing like it when we get inside that high-pressure bubble during the spring," says Sullivan. "That's when those brilliant, sunny days warm the bottom in the shallow backwaters. Usually on the third day of the high, the fish really turn on. These highs usually last three or four days before the weather changes."

Sullivan points out that one of his



Knowledgeable anglers will adjust the depth and presentation of their baits to target species affected by pressure changes, such as this mutton snapper.

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King mackerel often head to deeper water once a cold front arrives, and also tend to be less aggressive.

best nights of fishing came before an approaching front. With lightning flashing in the distance, the stripers turned on and aggressively struck the flies Sullivan and his charter clients were dead-drifting from their anchored boat.

“I’ve seen striped bass go on a wild feed right before the barometer began to drop,” says Sullivan. “During summer, we get an upwelling effect ahead of a front. Right before our southeast wind shifts more southerly and begins to blow, which precedes the front, it triggers a hot bite locally. The fish sense that a change in weather is about to occur and feed heavily right before the front. Once the wind goes hard south, they shut down. I guess they know they won’t be eating for a few days, so they have to gorge themselves.”

Offshore Affects

Barometric pressure affects things on the offshore grounds, too. I can recall a very slow day of dolphin trolling off

South Florida one summer. As the afternoon progressed, a major thunderstorm began making its way off the land and threatening the offshore waters. With the storm still miles away, a light, cool breeze sprang up. About the time we decided to retrieve our baits and take off, a school of dolphin charged out from underneath what had been a totally dead weed line. We hung around just long enough to boat 15 fish before the storm forced our departure.

During the winter off South Florida, sailfish use cold fronts to aid their southerly migration. In this case, the arrival of high pressure after a cold front can spur incredible fishing, whereas low pressure seems to curb the activity. Ray Rosher, one of Miami’s leading charter captains, shared his thoughts on how high and low pressure affect sailfish.

“A lot of people think it’s all wind direction that gets the sailfish moving and feeding, but it’s high pressure as well,” says Rosher. “For example, you can have a light wind

and rising pressure and the bite will be on. When high pressure moves in, we’re in a cold front and the wind is from a northerly direction. When we have a strong northerly wind opposing the northbound Gulf Stream, the fish rise to the surface and use the wind direction and waves to help propel them against the Stream’s current. Those are the conditions that really get them moving south. When they’re tailing on the surface, they’re burning more energy. And since they’re more active, they must eat more. This is when those red-hot bites materialize.

“Low pressure is often accompanied by wind and waves from the south, which push north with the Gulf Stream. The southbound sailfish are now prone to more resistance at the surface. There are no northerly swells or winds for them to use to their advantage when swimming against the Stream. During this stage, I believe the fish stay deep to conserve energy. When this occurs, my flat and deep lines get the most bites.

“A good example occurred recently when my co-captain, Alex Castellanos, caught five sails in calm conditions. The next day, the barometric pressure increased and the wind shifted around from the north. Alex caught and released 15 out of 16 sailfish in less than four hours!”

As mentioned, there are numerous factors that influence fish behavior, and any one of them can make the difference between success and failure. The best strategy, of course, is to plan your fishing days around the peak conditions for your particular area and the local species. Unfortunately, that’s a luxury few of us have, but now you can also blame the barometer if you come home empty-handed!