

# Knowing magnetic north



By Mark Rackay

It has been drilled into our little outdoor minds, since we received our first compass, that there is a difference between magnetic north and true north. I remember that I paid as much attention to this as I did to algebra in class. My little compass pointed out the way I needed to go.

The only time I was ever really messed up by the difference between the two was at sea. I was fishing offshore of South Florida in the warm Gulf waters for grouper and other deep water game fish. We were in an area known as the “rose” because it was exactly where the compass rose was on the nautical charts.

When it was time to head in, I got a heading from the LORAN (this was pre-GPS days), and took off on the course, using the compass to stay on course. Had I used the LORAN, it would beep and buzz at me every time I was more than 10 yards off course, and in a running sea, the waves would move you around quite a bit. All the noises from the unit were very annoying, after all, I had

my compass, so I was good to go.

We were 120 miles offshore, and heading home in the dark at 30 knots, and should be home by midnight. Well, as it goes, I missed the lighted buoy at the pass where I was supposed to be. I missed it by 10 miles and went up the next pass north of where I thought I was. All was not lost, just an unexpected extra hour of run time heading home. Stupid compass deviation.

Magnetic declination or the magnetic variation is the angle on the horizontal plane between magnetic north and the true north. The faithful old compass always points to the magnetic north, which corresponds to the earth's magnetic field lines. True north is the direction along a meridian towards the geographic north, as shown on charts and maps.

Depending on where you are on this good old earth, the difference can be as much as 21 degrees. That many degrees are enough to make you miss your mark, and never see it go past out the window. In my case, coming home from an offshore trip, it was enough to move me farther up the coast than I wanted to go. It was a good thing I was not running home from a storm or we would have had a real problem.

Think of the earth as a giant magnet. The shape of the earth's magnetic field is similar to a long bar magnet, but it is inclined about 11 degrees from



**There is a difference between magnetic north and true north, and it is moving.** (Submitted photo/Mark Rackay)

the axis rotation of the earth. This simply means that the earth's magnetic pole does not jive with the north pole, shown on the map. And, if that is not enough to make you crazy, the magnetic fields are moving.

There are actually two locations of a magnetic field; one is about a thousand miles south of the North Pole in Canada and the other is in Siberia. These two magnetic fields location is not fixed, rather, they drift around. Their

movement has been about 9 miles a year. Since the 1990s, however, the drift of the earth's magnetic pole has a present speed of 30 to 40 miles per year, and it is drifting towards Siberia. The field in Siberia is strengthening while the one in Canada is weakening, playing tug-of-war, so to speak. Scientific models suggest the magnetic field inside the earth's core will continue to drift towards Siberia, at least for the next few decades. Given that the pole's

position is governed by the balance between the Canadian and Siberian magnetic patch, it would take only a small adjustment of the field to shift the pole back towards Canada.

The reason this is such a big deal is because it does not just affect our little compasses. The exact location of magnetic north is vital for all kinds of navigational systems used by ships, airplanes, Google Maps and smartphones.

New studies of birds that are blown way off course of their regular migratory routes may use the magnetic signatures of the magnetic fields of the earth to find their way back on course. Birdwatchers are always excited to see a bird show up, such as the recent sightings in Colorado of the frigate birds, that are not normally seen in an area.

Hurricanes and other weather systems can cause birds to get blown way off course from their normal routes. A scientific team from Bangor and Keele Universities have discovered that birds can navigate from a magnetic position beyond what they have experienced in their normal navigation route, back to the correct route.

Adult birds already familiar with their normal routes were held in captivity for a short period of time before being released back into the wild and exposed to a simulation of the earth's magnetic signature at a location thousands of miles beyond their natural migration corridor.

Despite remaining at their capture site and experiencing all the other clues about their location, like starlight, sights, sounds and smells of their actual location, the birds still showed the urge to begin their journey as though they were in the location suggested by the magnetic signal they were receiving.

This just goes to show that the magnetic field of the earth has far more reaching consequences than just messing with our compass. Science has not completely determined what affect a changing or moving field may have on us as humans, but like global warming, it is something we should pay attention to.

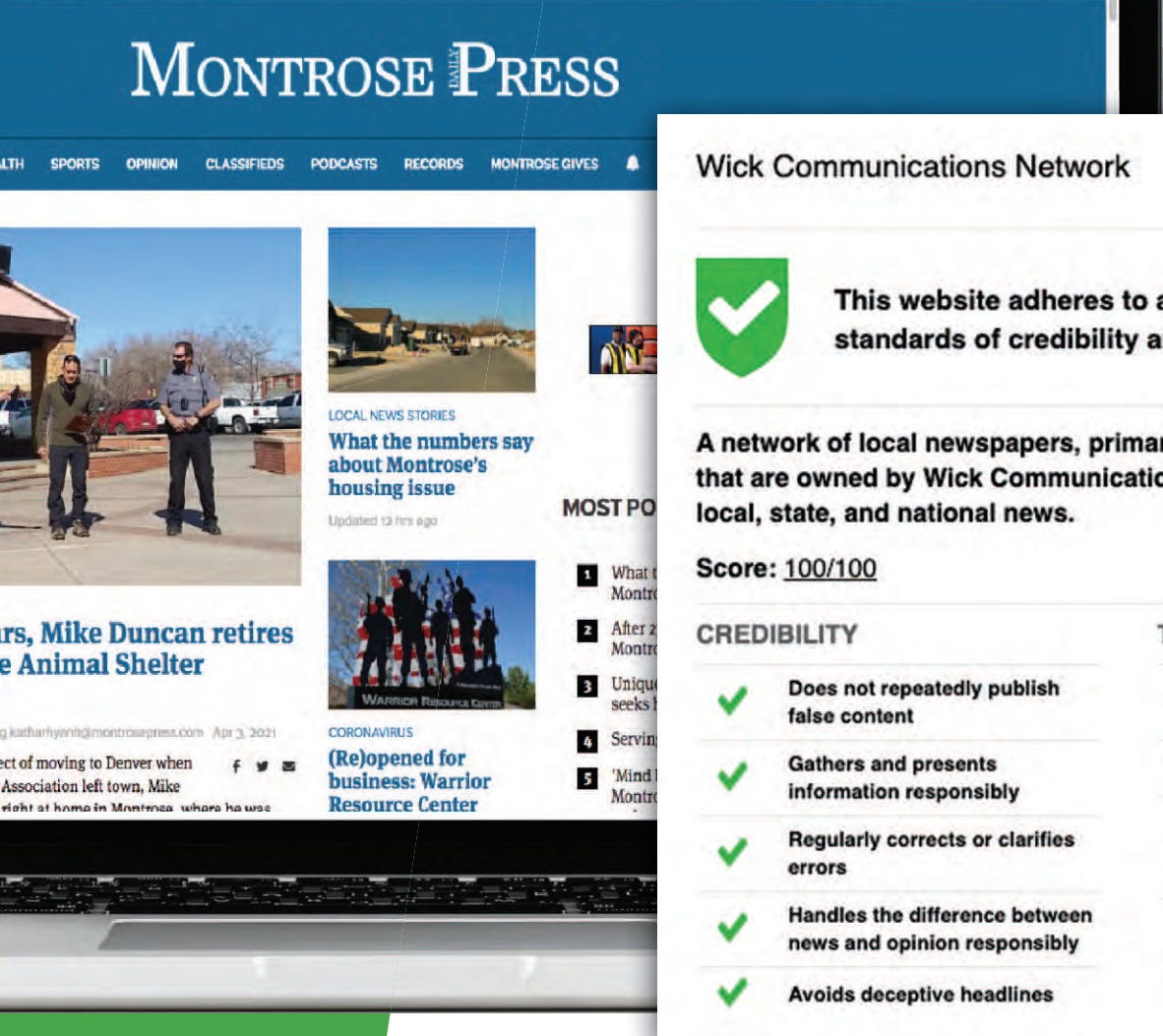
Just about the time I had my compass figured out, somebody goes and changes the magnetic north around. To make it worse, it is moving all the time, so we have a moving target up there somewhere. I can't help but think old Murphy is behind all of this.

*Mark Rackay is a columnist for the Montrose Daily Press, Delta County Independent, and several other newspapers, as well as a feature writer for several saltwater fishing magazines. He is an avid hunter and world class saltwater angler, who travels around the world in search of adventure and serves as a director and public information officer for the Montrose County Sheriff's Posse. For information about the posse call 970-252-4033 (leave a message) or email info@mcspi.org*

# MONTROSE DAILY PRESS

## Most Trusted News Source

## Earns Perfect Score



Wick Communications Network



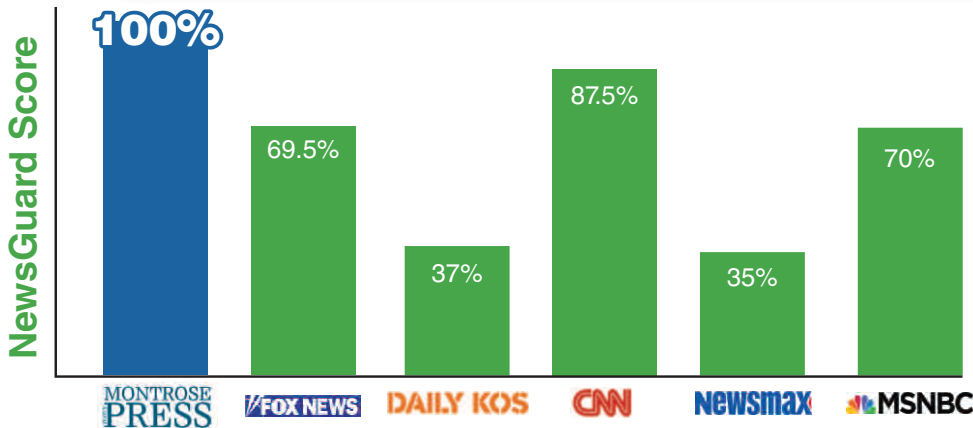

**This website adheres to all nine of NewsGuard's standards of credibility and transparency.**

A network of local newspapers, primarily serving western U.S. states, that are owned by Wick Communications. The sites publish a mix of local, state, and national news.

**Score: 100/100** [See the full Nutrition Label →](#)

CREDIBILITY	TRANSPARENCY
<div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="color: green; font-size: 20px; margin-right: 10px;">✓</div> <div>Does not repeatedly publish false content</div> </div> <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="color: green; font-size: 20px; margin-right: 10px;">✓</div> <div>Gathers and presents information responsibly</div> </div> <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="color: green; font-size: 20px; margin-right: 10px;">✓</div> <div>Regularly corrects or clarifies errors</div> </div> <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="color: green; font-size: 20px; margin-right: 10px;">✓</div> <div>Handles the difference between news and opinion responsibly</div> </div> <div style="display: flex; align-items: center;"> <div style="color: green; font-size: 20px; margin-right: 10px;">✓</div> <div>Avoids deceptive headlines</div> </div>	<div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="color: green; font-size: 20px; margin-right: 10px;">✓</div> <div>Website discloses ownership and financing</div> </div> <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="color: green; font-size: 20px; margin-right: 10px;">✓</div> <div>Clearly labels advertising</div> </div> <div style="display: flex; align-items: center; margin-bottom: 5px;"> <div style="color: green; font-size: 20px; margin-right: 10px;">✓</div> <div>Reveals who's in charge, including any possible conflicts of interest</div> </div> <div style="display: flex; align-items: center;"> <div style="color: green; font-size: 20px; margin-right: 10px;">✓</div> <div>The site provides names of content creators, along with either contact or biographical information</div> </div>

NewsGuard is a journalism and technology company that rates the credibility of news and information websites and tracks online misinformation.



News Source	NewsGuard Score
MONTROSE PRESS	100%
FOX NEWS	69.5%
DAILY KOS	37%
CNN	87.5%
Newsmax	35%
MSNBC	70%