

NOAA's QR Code Enabled Charts

Testing a new concept



Quick Response codes (QR codes) are 2-dimensional bar codes. When you scan or read a QR code with an iPhone, Android or other camera-enabled smartphone, you can automatically link to digital content on the Internet, activate a number of phone functions, or connect the mobile device to a Web browser (you may need to download a free QR code reader application to your smartphone first).

NOAA is evaluating QR codes as a way to enhance its Print-on-Demand (PoD) charts by linking them to real-time information. Help NOAA improve navigation services by commenting on the evaluation topics (listed on page 2) at QRcodeCharts@noaa.gov. Or leave a voicemail at 888-990-6622.

Concept Test



[Chart 11013](#)



[Chart 11400](#)



[Chart 11411](#)



[Chart 11412](#)



[Chart 11415](#)



[Chart 11416](#)

The test set includes PoD NOAA nautical charts around Tampa Bay, Florida. Each test PoD has a QR-code printed in the margin. When scanned with a smartphone, the code opens a chart-specific Web page on the phone. This Web page contains a menu of real-time and predictive data sites such as tides, currents, and marine weather. Simply tapping on a menu item then displays the selected data.

Scan QR code with Smartphone camera

Smartphone APP automatically goes to a URL encoded in QR code

Smartphone connects to real-time data over the Internet.

Select a menu item from the touch screen.

Numbered icons on the chart match numbered items on the Smartphone menu

The diagram illustrates the process of using a QR code-enabled nautical chart. It shows a smartphone displaying the NOAA chart 11416 interface for Tampa Bay. The interface includes a menu with items like 'Hurricane Information', 'Marine Weather', 'Tides', 'Air/Water Temp', 'Barometric Pressure', 'Wind', 'Station SAPP1', and 'Station OPT1'. A callout points to a QR code on the chart, stating that scanning it with a smartphone camera opens the chart-specific web page. Another callout points to a menu item on the smartphone, stating that selecting it connects to real-time data over the Internet. A third callout points to a nautical chart, stating that numbered icons on the chart match numbered items on the smartphone menu. The nautical chart shows soundings in feet and various navigational symbols.

NOAA is exploring the use of QR-code enabled charts as a tool for recreational boaters who do not have an electronic charting system or a computer on board. We are trying to determine if boaters find the QR-code enabled chart accessible and convenient.

Access to the QR sites would not be limited to Smartphones and tablet computers. The URL for each chart can be printed on the chart along with the QR-code. Mariners could then type the URL or make a desktop icon and access the real-time information like any other Internet site.

The QR-code service would be free from NOAA. Print-on-Demand charts containing the codes would be available from NOAA's partner OceanGrafix and their retailers (OceanGrafix.com). So, in addition to Print-on-Demand charts being updated for Notices to Mariners each week, QR-codes could also be included.

Evaluation Topics

NOAA's test of QR-codes uses eight charts (Chart [11013](#), [11400](#), [11411](#), [11412](#), [11415](#), [11416](#), [11424](#) and [11425](#)) around Tampa Bay, Florida. With this suite NOAA is evaluating the desirability, utility, and usability of the QR-code real-time data service. In particular, NOAA is evaluating:

- Usability of the mobile interface, particularly at sea
- The mix of information that should be provided
- Benefits to mariners of the information
- Utility of the icons on the chart at the information stations
- Appropriate improvements
- Mobile connectivity in recreational boating areas
- The costs to build and maintain a mobile information service
- Whether NOAA should offer this as a service

This information will help NOAA evaluate how to best serve mariners in the emerging mobile environment.

Try the Service Yourself

Scan the QR-codes above or buy one of the eight QR-enabled PoD charts. You can also type a URL in your Internet browser or click on a link at the right. URL's for the eight test charts are of the form http://nauticalcharts.noaa.gov/qr/QR_11425m.php. Substitute the chart number you want in place of that in the example. Explore the two formats of [Chart 11416](#) and [Chart 11424](#).

Thank you for helping us to evaluate this possible new service. Contribute your comments on the evaluation topics to NOAA at QRcodeCharts@noaa.gov or leave a voicemail at 888-990-NOAA (888-990-6622).



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