fully recharge these batteries. Knowing just how much power is needed for your device will help in selecting the best charging solution for use aboard.

Some faster than others

Not all charging sources are equal and some will charge faster than others. We want to keep charging as efficient as possible so as not to waste power while at sea. Most of today's small electronic devices use a USB-type charger which at first would seem to simplify things. We all know nothing is simple in the world of electronics and boats. Not all devices use the same charge amperage and not all aftermarket chargers are rated the same. Most tablets require 10 watts or 2.1 amps to correctly charge. Smartphones and other smaller devices only require five watts or 1.25 amps. I have heard complaints from some boaters that even after being left on a charger overnight their devices were still not fully charged. Others have complained that when using the device for navigation while plugged into a charger it still lost charge to the point of shutting down. Understanding what charger is best for your device will help avoid disappointing results.

Normally the best option for the fastest charging will be to use the 120-volt wall charger supplied with your device. This works well in the slip with shore power available, but as soon as we leave the dock this approach gets more difficult. There are options for using 12 VDC for charging, but care needs to be used when selecting a 12 VDC charger as not all aftermarket chargers are equal.

Before getting too involved in what power source to use for the charger, it helps to understand a bit more about the charger and the needs of the device being charged. As mentioned, most of today's devices use a USB charger. When the USB standard was first developed it was thought that the power would be supplied from a computer. Because of this the power output was limited so as not to overload the computer's motherboard. The most common USB standard is USB 2.0 which is set at a maximum charge rate of 0.5 amps. The newer standard of USB 3.0 has a higher charge rate of up to 1.2 amps. This can be important to understand as some devices will "talk" to the charger to determine the USB version of the charger.

Today's newer, power-hungry devices require more power than what the older USB standards can handle. Many OEM chargers that come with a device will provide the higher output needed to quickly charge the device. Additionally some devices will communicate with the charger to set the best charge rate for the device. This usually only works with the OEM charger supplied with the device. When used with an aftermarket charger, many devices will default to a lower charge rate. Others will take all the power they can get,

Above, a charging outlet on the binnacle allows for handheld recharging in the cockpit. Below left, a USB charging unit.