## Electronics, Their Role in Marine Navigation
## Taking Advantage of the Capabilities of e-Nav Tools and Minimizing their Limitations

The range of electronic devices and marine related software available to recreational boaters today is truly amazing; from multifunctional display (MFD) units to tablet computers and Smart Phones. These e-Nav devices help us navigate in all kinds of weather, get weather updates and avoid hazards, to include other boats, but they should always be considered aids to navigation and not the sole tools used for navigation. The challenge is how best to take advantage of the capabilities these devices provide for safe and effective navigation yet aware of their limitations and how to minimize them.

This **1- day** course is designed to identify the advantages e-Nav devices provide to recreational boaters yet make them aware of their limitations and how to minimize them. Equally important, today's navigators need to keep in mind that at some point electronics will fail. They need to know how to operate without them. This means knowing how to and maintaining a plot on a chart, running and updating a DR, and keeping a log while underway. It should not be a case of "one or the other" but rather how best to integrate the capabilities e-Nav tools bring to "traditional" navigation.

**This course might be for you or key members of your crew if:**
- You're looking to upgrade onboard systems and wondering how best to integrate new and old equipment .
- Looking for criteria for selecting new software for your navigation system, Smartphone and  tablets.
- You're looking for information available on the internet to support navigation planning and execution.
- You're unsure if you can answer these questions when planning a trip or while underway:
    - o I want to go to this position on the chart but how do I select the waypoints to put into my e-Nav device that will get me there?
    - o How do I locate the waypoints on my e-Nav device on my chart?
    - o Where am I and where is this on the chart?
- You're comfortable using a chart plotter or other e-Nav devices but not sure how to use paper charts and "traditional" navigation tools.
- You're comfortable using paper charts and "traditional" navigation tools but are a little hesitant when using e-Nav tools or knowing how to take full advantage of their capabilities.
- Wondering why what they see on the chart plotter does not match what they see on a paper chart of the same area.
- You want to know how to better take advantage of the ever increasing range of internet resources available to today's navigators.

This two part course first discusses what is e-Nav, the capabilities and limitation of e-Nav devices, criteria for selection hardware and software for onboard use to include Apps for Smartphones and tablets and an overview of key traditional navigation skills and plotting techniques. This is followed by **a cruise planning problem** demonstrating how to **integrate** e-Nav devices, internet resources and traditional navigation tools for a weekend cruise.