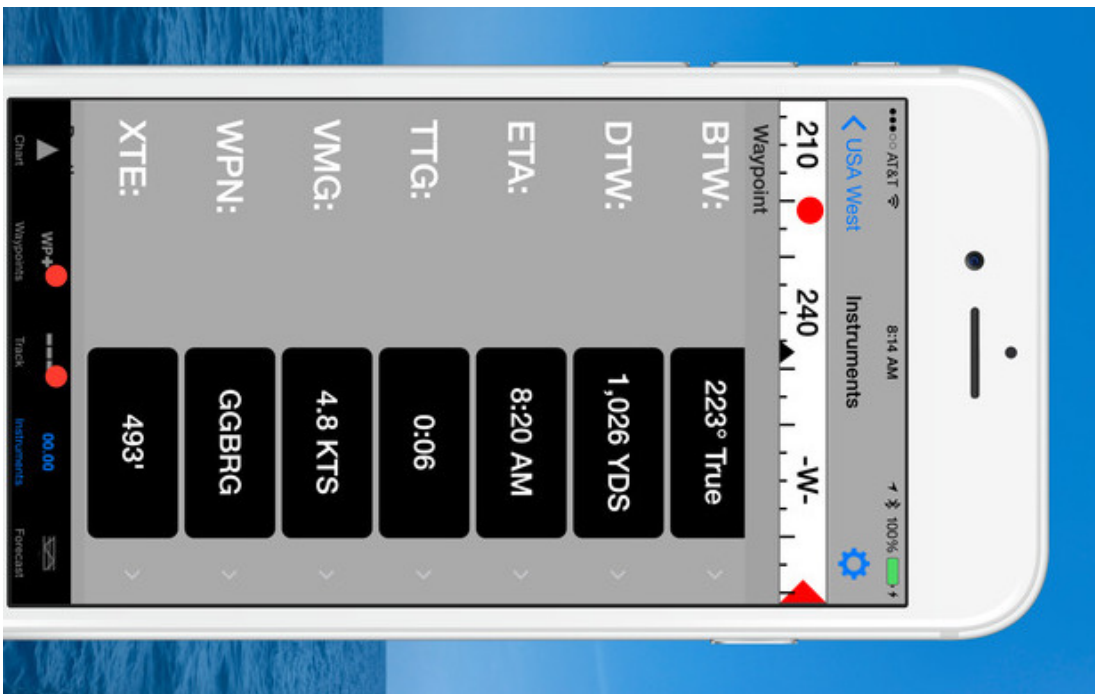


iPad® Navigation Workshop



Capt. Alison Osinski



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iPad® Navigation



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Learn how to navigate using your iPad (or even an iPhone) and the inexpensive iNavX – Sailing, Boating and Marine Navigation charting app. We will create and set waypoints, plan a route, measure distances, determine course to steer, check our (simulated) speed over ground, and estimate our time of arrival.

Raster charts are included FREE with this app for U.S. East, West and Gulf Coasts, Alaska, Hawaii, Great Lakes and Virgin Islands, and other types of charts and locations can be purchased that will work with this app.

Although it is not necessary for participation in the session, if you'd like some hands-on practice during the workshop, please download the iNavX charting software from the App Store and also download U.S. West Coast charts 18740: San Diego to Santa Rosa Island, and 18757_1: Santa Catalina Island onto your iPad.

This handout includes an iNavX tutorial as well as a list of other inexpensive or free apps that can be loaded on to your iPad to help you check the weather forecast, predicted wind speeds and wave heights, Doppler RADAR, tides, times of sun/moon rise and set, and assist you in identify ships on AIS, and setting an anchor alarm.

Links to other navigation software apps such as Boating USA HD vector charts by Navionics, and California GPS Nautical Charts Pro will also be provided.



iNavX Tutorial

- Importance of not depending on a single method or document when navigating and importance of still having paper charts aboard
- Chartplotters (cartridges) vs. handheld chart navigation applications – cost comparison
- Disadvantages of electronic charts: failure, overboard, power, big overview
- Raster (electronic picture of a paper chart) vs. Vector charts (ENC, zoom in more detail, but info changes)
- iPhone / iPad vs. Android devices
- Ability to download all charts to device so it works offline – no need for internet connection at sea

iNavX – Sailing, Boating and Marine Navigation

- Free NOAA marine raster charts included for U.S. East, West and Gulf Coasts, Alaska, Hawaii, Great Lakes and Virgin Islands.
- Most current charts are included and updates can be downloaded anytime. Once downloaded, an internet connection is not needed to use the charts.
- Other types of charts and locations can be purchased that will work with this app (X-Transverse, Blue Latitude Press, Navionics, Fugawi, Canadian Hydrographic Services, Theyr, TrakMaps, Waterway Guide...)
- Available from: App Store (Apple i devices) or Google play (Android devices)
- iNavX instructional videos are available on You Tube, and there are tutorials available from the developer, and an owner's forum
- Available to all devices with the same iTunes account
- Location services must be enabled to determine position, speed and course
- AIS overlays, route planning, automatic routes, weather, swells, tides & currents; import/export, geotagging photos

• Selecting charts

- My charts (included) / Store (Open a X-Transverse account and purchase)
- Magnifying glass: Search
- Triangle: Proximity to current location
- Clock: Sort by history, recently opened

• Chart view screen

- Top: Charts, Name, Settings (gear icon)
- Bottom: Chart, Waypoints, Track, Instruments, More

- Zooming: pinch/pull, scale left lower corner
- Scroll: Drag in any direction
- Compass: Top of screen above chart
- Instrument display: Select the “ i ” in a circle button to select and configure, use the triangle pointing right to toggle on/off

• Measure distance

- Double tap to start and a green dot will appear
- Drag to end and a red dot will appear
- Tap anywhere else on the screen to exit
- To measure from your current position, single tap the green dot already on the screen

• Location

- Single tap a location and a detail screen will open, lat/long, zoom, will allow you to mark the location as a waypoint

• Settings

- Tap gear icon in top right corner

• Instrument View

- Tap any box in the instrument row for more detail
- To only see instruments, tap the word “Instruments” at the bottom of the screen

• Waypoints

- Create a waypoint:
 - Long touch on screen then rename, or
 - Tap on the word “Waypoint” at the bottom of screen and press + to type in a name, symbol and location
- Waypoint list will be created and saved
- Waypoint created on one chart will appear on all charts showing the location
- Delete a waypoint by sliding your finger across the waypoint in the list on the waypoint screen and tapping “delete”
- Customize waypoints: Change name, add a description, add a photo, move, lock – by tapping the + sign on the waypoint screen to edit
- Move waypoint on the chart screen by tapping its name and dragging it to a new location
- Waypoint option screen: Double tap a waypoint name on the chart
- Navigate to a waypoint: Double tap on the waypoint name on the chart, or select from the waypoint list screen and select “GoTo”
- Stop navigating to a waypoint: Select “Cancel GoTo”

• Routes

- A collection of waypoints, directions
- Press “Routes” at the bottom of the screen to access a list of routes
- Create a new route: Use the + button at the top right corner of the screen, then press “Select waypoint” and choose a waypoint from the list. Press the + sign in the green dot to add the next waypoint in the route. Save the route.

- Edit route: Rename the route, save the route, invert the route, or delete a route by using the action button (arrow pointing up in a square) to access the route menu
- Activate or follow a route: Toggle on (or off to stop) on the route list, or GoTo on the waypoint list which makes up the route
- When a route is active, a blue dotted line will be plotted on the chart from your current location to the destination, and instrument information will be displayed
- Reorder or add or remove waypoints in a route: Use the move icon to the right of the waypoint name

• Tracking

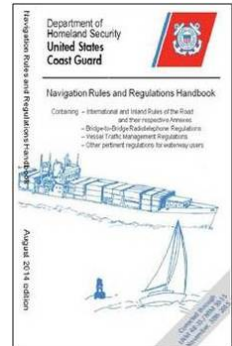
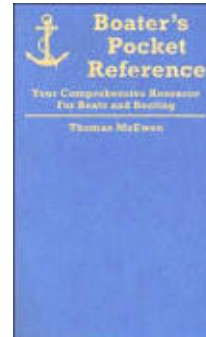
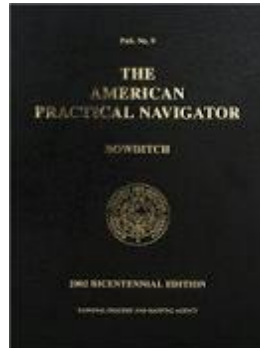
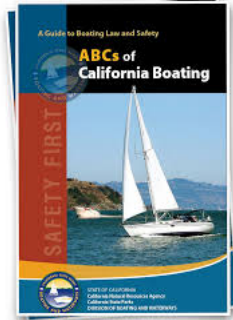
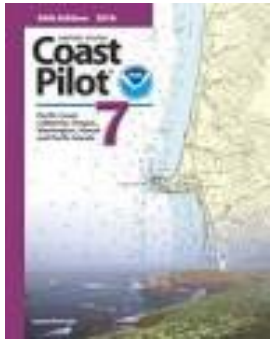
- Track is a log or “breadcrumb trail” of where you’ve traveled
- Select “Track” at the bottom of the screen
- On the track view page, select “Record” to enable tracking, and select hi, medium or low resolution
- Turn on background recording to record the track even when iNavX is not on (but will drain the iPad battery)
- Remove track: Select “Remove” to delete track history
- To share your track via email or Facebook, select “Export”

• Tools

- Select the “More” button at the bottom of the screen then select one of the tools:
 - Anchor alarm
 - Email position...

Other Free or Inexpensive Apps

Electronic format reference documents and apps to help you check the weather forecast, predicted wind speeds and wave heights, Doppler RADAR, tides, times of sun/moon rise and set, and assist you in identify ships on AIS, and setting an anchor alarm.



- **Reference documents** (PDF format) you should have aboard:

NOAA U.S. Chart No. 1 (Chart Symbols)
www.nauticalcharts.noaa.gov/mcd/chrtno1.htm

U.S. Department of Homeland Security / USCG Navigational Rules & Regulations Handbook (Vessels 39'4" / 12 M must have aboard)
www.navcen.uscg.gov/?pageName=navRuleChanges

ABCs of California Boating
www.dbw.ca.gov/pubs/abc/

U.S. Coast Pilot 7: Pacific Coast: California, Oregon, Washington, Hawaii and Pacific Islands
https://nauticalcharts.noaa.gov/.../coast-pilot/files/.../CPB7_E49_20171202_1713_WEB...

Bowditch: The American Practical Navigator
(All navigational methods DR to celestial, charts, publications, oceanography, waves & currents, marine meteorology, glossary of terms)
(Nathaniel Bowditch 1773-1838, American mathematician, astronomer and navigator)
www.amazon.com (Kindle edition 99¢)

Boater's Pocket Reference
App Store \$4.99

IALA Buoyage & Lights
App Store \$3.99

- **Tides, Currents, Astronomical Info**

Tide Chart USA FREE
App Store – Free

Ocean Watch
(Tides, Works with Siri)
App Store – Free

Sun and Moon Combo Bundle:
Moon Phase Plus – Professional (Phases of the moon, times of moon rise/set)
Sunset and Sunrise Times (Sun rise/set times, day length, first and last light)
App Store \$4.99

• Weather

Nav Clock
(Date, local and UTC time, lat/long, temperature, wind speed and direction, visibility, barometric pressure, dew point, humidity, sunrise/set, solar transit, twilight, total daylight)
App Store 99¢

NOAA Weather RADAR – Weather, Warnings
(Doppler RADAR weather forecasting using directional speed and velocity of precipitation to determine if movement is toward or away from the RADAR)
App Store – \$1.99

Sail Flow
(Real time wind data, forecasting, history, direction and speed)
App Store – Free (Advanced versions are by monthly subscription \$3.99-\$14.99)

National Weather Service Forecasts & Synopsis (San Diego)
Coastal waters from San Mateo Point to the Mexican Border and out 30 nm
and
Coastal waters from San Mateo Point to the Mexican Border and extending 30 to 60 nm out including San Clemente Island
www.wrh.noaa.gov/total_forecast/marine.php?marine=pzz750

Passage Weather
(Select North Pacific, then select Southern California, 7 day predictions for surface wind speed and direction, surface pressure, wave height and direction, visibility, precipitation, cloud cover, and sea temperature)
www.passageweather.com

• Safety

Boat US

(Call for a tow, displays membership card, lat/long, discounts, tides and local weather, can share location and photos)

App Store – Free

Ship Finder Lite

(Live marine and vessel tracking)

App Store – Free, \$4.99 without ads

Marine Traffic – Ship Tracking

(Real time AIS - Automatic Identification System, collision avoidance, ship tracking, ship name, photo, size, status, speed, and course, lat/long, track, route forecast, port history, vessel details, weather)

www.marinetraffic.com

Anchor!

(Anchor drag alarm and charting)

App Store \$2.99

- **Other Marine Navigation Software**

California GPS Nautical Charts Pro

(Raster charts combined with digital S57 vector electronic charts)

App Store \$3.99

Navionics Boating Marine & Lakes

(Boating USA HD and Boating US & Canada by Navionics are being discontinued)

(Vector charts same as on chartplotters using Navionics cards)

App Store – Free 15 day trial then \$29.99 for 1 year subscription

Capt. Alison Osinski

Alison Osinski , Ph.D. is currently the principal-owner of Aquatic Consulting Services, located in Avalon, California – Santa Catalina Island. She specializes in aquatic risk management, aquatic facility design, management and operation; and provides litigation support and expert testimony in cases involving construction defects or personal injury occurring during boating and recreational water activities.

Dr. Osinski's experience in the field of aquatics includes past employment as: a lifeguard, swim instructor, sailing instructor, swim coach, crew coach, pool manager, pool service technician, marine institute aquatic specialist, park & recreation supervisor, and university professor – prior to starting her consulting firm in 1982. She is actively involved with several national and regional aquatic organizations, and has been recognized as a leader in her field. Dr. Osinski is an author with over 145 publications to her credit, editorial advisory board member for several aquatic publications and journals, workshop coordinator and frequent speaker at national aquatic conferences.

Alison is also a U.S. Coast Guard licensed captain (Master, Near Coastal, 100 Tons, with Sailing, Towing, TWIC & STCW Endorsements). She has sailed extensively in the Pacific and Atlantic Oceans, the Great Lakes, Caribbean, Coral Sea and the Sea of Cortez. She gives keel boat sailing lessons, conducts boating safety drills, and provides instruction on boat handling, navigation and rules of the road. She does the occasional boat delivery to and from Mexico, and leads day sailing trips and Pacific Ocean cruises off Southern California and to the Channel Islands.

