

Step by Step Instructions

Install two new or fully charged AA batteries in the back of the unit. Always carry two additional new or fully charged batteries as back up. Replace the batteries as necessary. From the Main Menu page, highlight the Setup and press ENTER, then highlight the System and press ENTER, then scroll down to the AA Battery Type to make sure the GPS is set to the appropriate type of battery (e.g., alkaline, lithium). If necessary, press ENTER to change the battery type. Turn on the GPS by depressing the power button (on the top of the unit) for 2 seconds. Check SETUP options by pressing the menu button twice, then scroll down to the SETUP selection and press ENTER. Scroll through the sub-menus (using the Rocker keypad) to verify the following settings are in place:

System: GPS = Battery Saver

WAAS / EGNOS = Enabled

Units: Position Format = UTM UPS

Map Datum = North American Datum 1983 (or NAD 83)

Distance / Speed = Metric

Elevation = Metric

Heading: Display = Degrees

North Reference = True

Set other settings as desired by user. These settings will be saved on the GPS unit. It should not be necessary to re-enter them each time the unit is turned on.

To turn off the Garmin GPS unit, press and hold the power button near the antenna or on the right side (depending on the unit) for two seconds.

Uploading Plot Locations

GPS coordinates for pre-selected plot centers should be loaded into the unit before field sampling. The datum for all coordinate values is NAD 83. The coordinate system is Universal Transverse Mercator (UTM). The zone is 17N for Florida parks (BISC, BICY, EVER, and DRTO). The zone is 20N for U.S. Virgin Islands parks (BUIS, SARI, and VIIS).

Use the DNRGPS program to upload plot locations from the ArcMap shapefile to the GPS unit. Immediately after uploading the plot coordinates, it is critical to check the GPS map page to ensure that the plot locations are shown correctly on the GPS, thus ensuring that the coordinates were uploaded in the correct projection.

Navigating using the Garmin GPS Map 60CSX or newer unit

1. With the receiver on and locked into enough satellites to have 3D navigation, push the “Find” button. Select “Waypoints”

2. Scroll to the waypoint you want to navigate to.
3. Select your waypoint, then “Enter”
4. Choose “Goto” (highlighted), then “Enter”
5. Use the screen with the compass/compass arrow to read and manually set your compass bearing. The Garmin GPS 60CSx does not have a reliable built in compass, so do not think that the compass arrow is pointing the actual direction you need to go. Use it to set your compass bearing.
6. Click the Page button to navigate to the map screen to ensure you are heading the right way to get to your waypoint
7. When you are close to your point click the Page button to switch over to the compass screen to continue to move in the direction of the point but navigate slowly so as not to “overshoot” the point. Navigate as close to your point as time will allow. It is generally not necessary to navigate closer than 2–3 meters (6.6–9.8 feet [ft]) from the selected point, be primarily concerned with getting consistent location information.

Note: Unlike a compass, if you stop and turn to face a different direction, the GPS will not reposition until you move again. In addition, the arrow that represents your position on the Map page is not necessarily pointing in the direction that you are moving. A compass should be used to determine the correct direction, and care must be taken to hold the compass sufficiently far from the GPS unit to avoid influencing the compass needle.

To stop navigating, when in the map view press Menu then Stop Navigation, and press Enter. On newer units such as the 62s or 64s, press Find then Stop Navigation.

Recording a New Location

1. When you are satisfied with your location, depress the “Mark” button. A default three-digit name and symbol for the waypoint will appear at the top of the screen.
2. Toggle up to the Waypoint Name, when highlighted press “Enter”.
3. Use the onscreen keypad to enter the plot id as the name of new waypoint, (e.g. BISCXXX###)¹, then hit “OK.”
4. Record the x and y UTM values, the UTM zone and estimated accuracy (ideally less than 10 meters [32.8 ft]) on field form.

¹ Note that the plot id naming convention when recording new waypoints is the four letter park code plus the three letter forest community code plus the plot number (for instance BISCMAN005 for plot #5 in Mangrove Forest at Biscayne National Park).

5. Ensure that the plot is named correctly, then scroll down and press “OK” or “Done” to save the waypoint.
6. Also, press “Page” to get to the Satellite page that shows the bar graph for your satellites. There is a bar shown for each satellite you are getting a signal from. Record the number of satellites (if you are receiving a WAAS signal, there will be a “D” on the bottom of one or more bars).

Delete a nearby Waypoint

1. With the unit on, depress the “Find” button, then select “Waypoints,” scroll to desired waypoint, highlight it and hit “Enter.”
2. At the bottom of the page, toggle to “Delete,” press “Enter” and then select “Yes.”

Delete all Waypoints

1. Only do this if all the new waypoints have been downloaded and saved, and you need to upload new data. Preferably this task will be performed by the data manager or GIS specialist.
2. With receiver on depress “Find”, then select “Waypoints,” then, press “Menu,” select “Delete” then choose “All,” Press “Enter,” select “Yes,” press “Enter.”

Downloading Recorded Locations to ArcGIS

Each week, use the DNRGPS program to download the recorded field plot locations from the GPS unit to a shapefile. Save this shapefile using the following nomenclature: <four letter park code>_<YYYYMMDD>_waypoints.shp. One example would be “SARI_20190611_waypoints.shp.”

Suggested Reading

- Garmin GPSMAP 60CSx Owner’s Manual
- Garmin GPSMAP 60CSx Quick Start Guide
- Garmin GPSMAP 64 Quick Start Guide

Equipment List

- GPS (Garmin GPSmap 60CSx/Garmin GPSMAP64)

Literature Cited

Shamblin, R. B. 2019. Plot Evaluation, plot establishment and return visits—Version 1.0. South Florida/Caribbean Network Standard Operating Procedure NPS/SFCN/SOP—FVM03. South Florida/Caribbean Network, Palmetto Bay, Florida. Available at: <https://irma.nps.gov/DataStore/Reference/Profile/2267809> (last accessed December 2019).