

PATON Patrol Review: Verification Steps

Pre-Patrol

- 1- Print out your assignments
- 2- Review each sheet for LL updates, with the LL Weekly download:
<https://www.navcen.uscg.gov/weekly-light-lists> **Note: version by LLNR, not WW!**
Compare that information with what is printed on your ATONIS Report sheet.
If needed, make pencil/pen corrections to your hardcopy sheet/s. Be sure and review all the ATON details on the sheet/s.
- 3- Review the most recent LNM so that you are aware of all the reported P/ATON discrepancies in your Patrol Area. Note: Also subscribe to and review your Sector's Broadcast NM for applicable discrepancies
- 4- Assess whether the listed characteristics comply with IALA. Check the appropriate box on the PATON Verification sheet.
- 5- Review the LL position versus the charted position (via NOAA's ENC Viewer). (hand out 2-page "How To") **NOTE: Switch to page 2**
 - a. **Note:** You can use the spreadsheet that is on the back of this page. If creating this spreadsheet yourself, you'll need to pick-off the position online with NOAA's ENC Chart Viewer [<https://www.nauticalcharts.noaa.gov/encOnline/enconline.html>]
zoom into your area and PATON to a really large expansion. Make note of the charted position.
 - b. Use the online measurement tool to estimate the LL vs chart position differences. Enter it into your Position Comparison Spreadsheet. Use red font if larger than allowable.
 - c. Fill in the right-hand side of the PATON Position Comparison Spreadsheet.
- 6- Inspect your GPS unit (must be WAAS-enabled or a cell phone aGPS). Ensure the unit's datum is WGS84 (factory default), and the WAAS is enabled (/cell phone app has a "Fix Accuracy"). Go to the screen that you use to take fixes - set it up to read out in degrees/minutes/seconds (to the tenths, at least), and have this screen also display the EPE (estimated position error) or "Fix Accuracy" if a cell phone app.
 - a. Extra: Enter your assigned PATON/s positions (either Charted or LL) as Waypoint/s.

During the Patrol

- 1- Observe the PATON during **daylight**, obtaining a position which includes a position accuracy (while not putting the Aux Facility at risk). **Note:** If the charted position is within tolerances and the LL is not, do not do the immediate reporting, just markup the verification sheet and submit. Record all PATON details observable in daylight.
- 2- Observe PATON at **night**, recording the light characteristics and light (operational) range. This range can be computed using the LL or charted position as a "waypoint". **Note:** If the operational range is less than 2 miles, it is almost certainly discrepant.
- 3- **End of Patrol:** If the PATON is discrepant for any reason (except for in #1's Note), communicate it into your Sector via radio (if they have your 'radio guard') or via telephone (Sector Puget Sound: 206-217-6002,3,4; Columbia River: 503-247-4038)

After the Patrol

- 1- Complete marking up the PATON Verification sheet when you get home. Be sure and emphasize the differences/discrepant items by either **highlighting** (on paper submittals) or bold circling (on scanned/emailed submittals). Scan the marked-up verification sheet and email to Tim Westcott (d13-smb-d13-paton@uscg.mil) and cc your FSO-NS.
(Can also mail in – not preferred - but inform your FSO-NS either way.)

How to Perform PATON Position Checks

How do you know if your observed position on a PATON is close enough? A visual confirmation is **not** adequate. We need to be precise enough so that charts and Light Lists can meet their position standards. Take a WAAS-GPS (or an aGPS) fix. As part of acquiring those positions, you need to access your fix accuracy. The process for identifying accuracy (the EPE) should be explained in your unit's user's guide. (Not explained here.) The distance standard that applies is D13's distance standards for Private Aids:

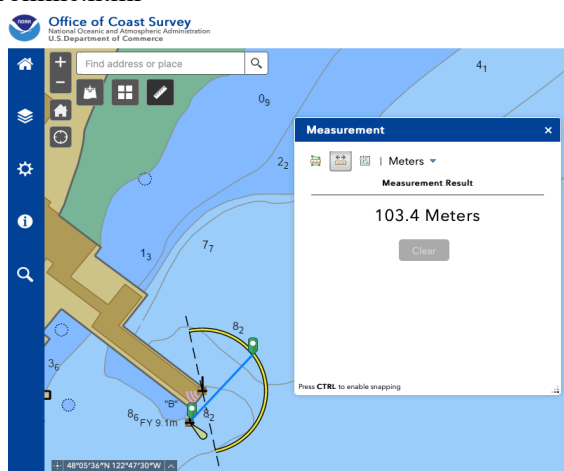
USCG PATON Distance Standards: need to fall within one of three distances:

- Fixed Lateral PATONs: 15 meter/50 foot accuracy.
- Floating Lateral PATONs: 35 meter/100 foot accuracy.
- Non-Lateral/Regulatory/Informational/Special Purpose (fixed or floating) PATONs: 100 meter/350 foot accuracy. Note: Might need to be closer if the position on the ENC file mis-represents its location in the Waterway. Call DSO-NS (Pam CK) is questioning.

Preparing for a PATON Patrol

1. Copy down the CY Light List (LL) positions of your PATONs. (They are also on your Verification Sheets from D13 dpw). (Entered below in Columns B/C.)
2. Obtain the charted positions by going online to NOAA ENC Online
<https://www.nauticalcharts.noaa.gov/ENConline/enconline.html>

- Zoom into your area and PATON to a really large expansion. Place the cursor on the PATON (dot or center of symbol - in degrees/minutes/seconds & decimals (dd/mm/ss.s). Copy that into Columns D, E.
Now place a mark at the LL position. Then use the measurement tool and record the distance).
SWAGs: a second of Latitude = 30.87m or 101.27 ft. (tenth sec: 3.1m, 10.1ft)



Note grey-lettered Lat/Long (lower left) -----

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I suggest creating a Position Comparison Spreadsheet to compile your information.

LL #	LL GP-Lat	LL GP-Lon	Chart Lat	Chart Lon	Chart Δ'	Chart Δ m	Dir/Brg	Obs Lat	Obs Lon	Obs Δ' /LL	Obs Δ m	Obs Δ' /Chart	Obs Δ m	Dir/Brg	GPS Acc	Obs Depth	min's b4 HW	Standard	Allowable difference	Note/s	Source
19223	48/43/22	122/30/49	48/43/23.1	122/30/44.1	346	105.5	71	48/43/23.55	122/30/45.08	308.6	94	80	24.5	059, 305	0.01'	na	na	Special Purpose	350ft 100m	Fairhvn AK Ferry Pier	Port ofBham, Engrg Dept
19281	48/45/38.354	122/30/34.16	48/45/37.8	122/30/33.8	53	16.2	157	48/45/38.26	122/30/34.14	1.6	0.5	49.2	15	028	0.01'	na	na	Fixed Lateral	50ft 15m	Sq Ck Range-Front Lt	Port ofBham, Engrg Dept
19282	48/45/36	122/30/36	48/45/42.9	122/30/28.5	860	262	36	48/45/42.16	122/30/29.74	754.5	230	112.5	34.3	034	0.01'	na	na	Fixed Lateral	50ft 15m	Sq Ck Range-Rear Lt	Port ofBham, Engrg Dept

3. Enter the distance difference into your spreadsheet. (Pam can email you a spreadsheet template.)

Notice in this example that the charted position is 103 m from the LL position. And because it is a Special Purpose PATON, this position (one of two) is **not** adequate (barely). A WAAS-GPS position (or cell phone aGPS) should be acquired/submitted.

During/After Patrol

4. When on your PATON Patrol, record the PATON's position as accurately as possible (Without ever putting yourself or the vessel in danger).
5. Enter all this data into your Position Comparison Spreadsheet.
6. Select the applicable USCG difference standard. Notice in the example above that one of the two positions exceed the distance standard for USCG. Be sure to include the accuracy of the WAAS-GPS (or aGPS) position you obtained - it's the EPE (/Fix Accuracy) in feet.
7. Besides completing / submitting the ATONIS Sheet mark-up, it is suggested that your Position Comparison Spreadsheet also be submitted to D13 dpw (our customer - D13's Waterways Branch!).
8. Remember, if the observed position difference is larger than allowable, it is "Discrepant" and should be reported as such. The only reporting exception being (as explained on Page 1, "During", Step 1,.. if the observed position is within tolerances of the LL's, but the charted is not. But if the observed position versus the LL exceeds the allowable, report it as "Discrepant". Include in your Report whether you assess that in that specific instance it causes a potential impact to safety of navigation.