

**UNITED STATES POWER SQUADRONS
BOC-OTW TRAINING COMMITTEE**

COASTAL NAVIGATOR GUIDE

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For information regarding insurance coverage of United States Power Squadrons sanctioned events, please refer to the insurance information on the USPS.org website.

In the event of an accident, call for medical help and provide care to the extent of your training (CPR, First Aid). After rendering aid, contact the proper authorities based on your state law. As soon as possible, contact, in this order (until you are able to reach one), the Regional Director, BOC Rear Commander, ANEO, or NEO for further directions. In addition the USPS Headquarters Director must be notified at 800-367-8777 (800-FORUSPS).

GENERAL

The following guide contains information for both the Coastal Navigator **Candidate** and the Coastal Navigator **Certifier**.

Terms and Conditions

1. It is a condition of taking this course that the candidates acknowledge the fact that there are inherent dangers involved in on water activities. These dangers range from simple inconvenience to serious injury and even death. Conditions can change rapidly, unexpectedly putting even the best planned situation at risk. To this end, safety is of paramount importance. Candidates must at all times wear a properly sized and fitted personal floatation device on the docks or the boat. Furthermore Candidates agree to comply with all regulations and safety instructions given by the instructor. Failure to comply will lead to student's immediate expulsion from the course. This decision is at the sole discretion of the instructor.
2. Boating is physically demanding. Normal access to marina and docks is required. Candidates are required to board a small, open boat unassisted. The student needs to be able to safely support their own weight and have sufficient flexibility and balance while entering and moving around in a boat on their own. Candidates must have sufficient upper body strength to secure themselves during high-speed maneuvers. Candidates must have vision sufficient to see water, boats, hazards and navigational aids at reasonable distances and lighting conditions. Hearing must be adequate to hear and understand instructions, audible warnings and sound signals.
3. Certifiers will decide how all courses are to be conducted. This includes whether or not to go on the water and when to terminate and/or reschedule on the water portions of the course in the interest of safety. Candidates are to observe all requirements, provisions, regulations and orders made by any competent authority relating to or affecting the use of the craft (such as law enforcement). If the student is using their own craft they are to inform the instructor of any special requirement, provision, regulation or order pertaining to the specific vessel. Candidates will at all times obey and carry out all lawful commands and instructions given by Certifiers necessary to complete the coursework. This shall apply regardless of who owns the vessel being used. The instructor's decision in these matters will be final.
4. All craft used in instruction, regardless of ownership, shall carry all equipment required by state, federal and local law, be legal to operate in the waters the instruction is given, and carry a current Vessel Safety Examination sticker.
5. If a candidate's craft is being used for training purposes they must maintain at their own cost a comprehensive policy of insurance covering all usual risks.
6. The student warrants that all representations made in the enrollment process are true and correct.
7. Anyone 18 or under must have a parent or guardian sign all paperwork.
8. The student warrants that they have made full disclosure of all material circumstances, including health, physical limitations, issues of vessel limitations, and of everything respecting the providing of this instruction.
9. If any of these conditions is held to be invalid or unenforceable that will not affect the validity and enforceability of the rest.
10. This agreement cannot be assigned without prior written consent. Any variation to any of these conditions is invalid unless accepted in writing, and the terms and conditions of this agreement shall prevail over any sought to be enforced.

For the Candidate

Welcome to Coastal Navigator (CN). This is the second step in the United States Power Squadron On-The-Water (OTW) certification program. In this certification, you will be asked to demonstrate some basic boating and piloting skills to a Coastal Navigator Certifier (CN Certifier). Upon successful completion of these on the water demonstrations, and the required course work, you will be granted your Coastal Navigator certification.

Note: CN Certifier formerly was called an Advanced Certifier.

What is in it for you?

Since its inception, the USPS Certification program has been regarded as the leader in on the water boat training and certification. Not only within USPS, but also by the USCG and other boating organizations. Our certifications have already been valuable in assisting members in chartering boats in the United States and Europe. Recently, the USPS Boat Insurance program has recognized the USPS Boat Operators Certification program (BOC) and is now offering discounts on insurance policies based on the BOC level achieved. As the program develops, we will be adding many more partners to our growing list.

Candidate's Requirements

Coastal Navigator, candidates are required to have visual and auditory acuity (drivers license is acceptable) and complete BPH. To receive the Coastal Navigator certificate, candidates are required to first complete be Inland Navigator and pass the following courses, seminars, and skill demonstrations:

Required Courses:

- Piloting
- Weather
- Marine Communications or Marine Radio Communications (ME 102)

Required Seminars:

- Mastering the Rules of the Road
- Anchoring
- Mariner's Compass
- Tides and Currents (waived if candidate has AP)

Optional Seminar:

- Marine Radar

Skill Demonstrations (requirements presented later in this guide)

- On-The-Water Navigation and Boat Handling Skills
- Pyrotechnics

When your CN Passport is complete contact your Regional Director (RD) and tell him/her you have accomplished all the requirements. The RD will check and if correct will credit you with CN. HQ will send you your certificate and wallet card. Your new rating will show up in DB2000. This could take a month.

Equivalencies

For boaters with extensive on the water experience or education covering any of the requirements for certification, we will offer a process to determine if your experience in our opinion is equivalent. Equivalencies will be considered for individual certification requirements by following the policy in the certifier's manual.

How to Accomplish the OTW Navigation Skill Demonstration

What to do before the day of the training and skill demonstration?

Your CN Certifier will discuss the route with you either in person, by computer, or phone. At this time you and your CN Certifier will determine where you will start (Waypoint 1, WP1) and where you will finish (WP6 or more). Then you will plot your route, inserting at least four additional waypoints, for a total of 5 or more legs. The length of each leg depends on the local conditions, but each should be long enough to be measurable (such as 1 nm). Also, at some time during your skills demonstration you will be asked to anchor.

Coastal Navigator is based on Piloting (version 2004 or later). As such, it emphasizes electronic navigation. While electronics are not absolutely necessary for completion (traditional navigation is accepted), the use of a GPS or electronic charting system is highly recommended as this is the current USPS standard. Regardless, traditional plotting (paper chart) procedures are also required, so it is recommended that you refresh your basic plotting skills as taught in Piloting (especially if it has been sometime since you took this course or did any traditional navigation). During one of the legs of your route, the CN Certifier will obscure your GPS or Charting instrument from your view (as if there was an electrical malfunction). For the completion of this leg and the next you will be required to navigate using DR procedures. At the end of the second leg, your position will be compared with the GPS location.

While Coastal Navigator is based on Piloting, it is expected that you have a rudimentary knowledge of tides and current. Complicated calculations are not required, but a basic knowledge is usually necessary for safe coastal navigation and anchoring.

What should I bring with me?

Life Jacket (required to be worn by everyone aboard during all USPS training exercises).

Traditional Plotting Tools

Hand Bearing Compass (while not absolutely necessary, it can be a big help when taking bearings).

Personal gear (hat, sun glasses, water, appropriate clothing).

What to Expect during the training?

The OTW program has two steps. When you first arrive, you will be given a seminar explaining the program and what is expected. This will either be a PowerPoint presentation (if facilities are available) or a lecture. This is much like the seminars in our seminar program, except it is usually completed in less than one hour **if** you have completed the route assignment as discussed with your CN Certifier before the day of the training.

How will the skills demonstration be conducted?

A CN Certifier administers the skills demonstration. It is recommended that an additional person be available to assist you with some of the tasks. If you have a first mate with whom you normally cruise, it is ideal if this person is included in your certification skills demonstration. From our experience the person assisting will also learn from the experience. This skills demonstration of the second person will not be evaluated unless they separately complete all the required exercises.

Additional electronic equipment (such as Radar or AIS) may be used, but their use will not be included in the grading.

How are the skills demonstration “graded?”

The goal of the BOC program is your success as a Coastal Navigator. The CN Certifier is not only a “grader” but also an instructor if necessary. If you have difficulties accomplishing any task, the CN Certifier will work with you so you can accomplish what is required (within reason). You must complete all tasks. If not able to complete all tasks the CN Certifier marks off those skills accomplished and signs the ED-C1 form which is the **Candidates** responsibility to keep and present to the next CN Certifier when planning to complete his skill demonstration. When successful the final CN Certifier enters the accomplishment into the BOC database.

Safety

Safety of the crew and boat are the first concern. At all times it is mandatory that all practices on board are conducted in a manner approved by USPS. A USPS member is in control of the vessel. Others can be at the helm but the USPS member is on board and in control. If, at any time you consider an act or routine dangerous, you should stop and discuss it with your CN Certifier.

Coastal Navigator

- Discuss the testing routine, and the route, with the candidate before the day on the water. The candidate must pre-plot his or her route prior to meeting for the certification. If this is not done, extra time will need to be allotted before leaving the dock.
- Ensure that skill demonstrations are held in a safe manner. (Coastal Navigator, certification should be done in good weather and daylight.)
- All parties on the boat need to keep safety first and foremost.
- It is recommended that in addition to the CN Certifier and the candidate, a “look-out” is on the vessel to assure safe operation at all times.

The following is the CN Certifiers guide for evaluating candidates for the Coastal Navigator certificate. In some cases, the CN Certifier may deviate from the expected demonstrations if the water conditions or vessel used do not reasonably allow the candidate to meet the Evaluation Criteria as written, provided the alternate demonstrations provide objective evidence the candidate has the skills to meet the criteria.

Besides basic certification the CN Certifier may explain the skill to be demonstrated and may also teach or coach the candidate. The candidate must demonstrate OTW skills consistent with the ability to safely operate a vessel as required for Inland Navigator as described in the activity Reference book “Start Power Boating Right (published by US Sailing),” and in the required USPS courses: ABC 3, Seamanship, and Piloting. The candidate should also be aware of the material in the BOC Coastal Navigator “Candidates Guide.”

Coastal Navigator is designed for navigation using electronic navigation systems, with traditional navigation as backup. However, if the candidate prefers, the entire certification can be performed using only traditional navigation methods (using paper charts and traditional navigation tools). The requirements and evaluation may be adjusted as appropriate.

Coastal Navigator Certification

Definition:

Navigation Limits:

- Within range of a VHF shore station – not farther than 20 nautical miles offshore.
- Limited to daylight hours with good visibility and fair weather
- Conditions are not to exceed the capabilities of the boat and crew and exercises are to be conducted during daylight hours with good visibility, conditions and fair weather.

Boat:

- A boat of any size suitable for extended day cruising (sail or power), preferably with a cabin. Provided by the candidate.
- Current Vessel Safety Examination decal.

Required Equipment:

- Compensated Compass
- GPS
- VHF radio
- Paper charts of the area
- Plotting tools
- Coast Guard approved PFD (lifejacket) worn by every person onboard.
- Manuals for all electronic navigation systems on board (if available).
- Other safety equipment as required by the U.S. Coast Guard or local authorities.

Optional Equipment

- Hand bearing compass
- Other electronic equipment (Radar, AIS)
- Chartplotter or Laptop Computer

Additional items (often overlooked):

- Adequate clothing for conditions
- Drinking water
- Sun protection

NOTE: It is unlikely that any certifier will be knowledgeable of every different model of GPS or Computer Plotting Program. The candidate needs to understand that the Coastal Navigation Certifier has the overall knowledge and skills, while not having knowledge specific to every brand.

On The Water Navigation and Boat Handling Skills Requirements

- A boat suitable for coastal cruising is required. A cabin is preferred, but not required.
- The boat should have necessary equipment for anchoring.
- Access to Open Water - it is necessary to have access to Open Water that is suitable for developing a route with at least 5 waypoints.
- Speed - the maximum speed allowed is 10 knots (or a speed to keep the boat off-plane).
- A GPS, Chart Plotter, or Computer navigation system is recommended, but not required. If the boat doesn't have a GPS, the certifier, or student, should arrange to have a portable unit onboard for verification of DR plot.
- A hand-bearing compass is recommended. However bow-on bearings are acceptable for determining LOPs.

Dead Reckoning (DR) for CN

The candidate should demonstrate the following knowledge:

- Understand the concepts of dead reckoning
- How to determine the distances and the magnetic headings given a chart and a set of waypoints
- How to use the 60DStreet formula to determine the time to navigate each leg at a given boat speed (USPS precision standards for calculations should apply – heading in whole degrees, distance to 0.1 nm, speed to 0.1 knot, time to the nearest whole minute)

The candidate should demonstrate the following abilities:

- Effective communication with the first mate who will provide assistance with information and time during the exercise
- Steer a consistent heading using a compass and visual landmarks
- Maintain a consistent speed using a log or the speed of the engine
- Safely navigate the sequence of route legs using DR.

The accuracy of the navigation will be subject to how well the boat can maintain course and speed. Also the candidate is expected to account for wind and currents. The evaluation is based on the overall performance of the student and the distance from the objective. The DR leg is expected to be within 0.3 nm/nm of the intended waypoint(s). At the conclusion of the DR section and exercise, the instructor will provide feedback on performance and accuracy. The candidate may wish to retry the exercise, as needed (if time permits).

Skill Demonstration Instructions

Skill: NAV – On-The-Water Navigation and Boat Handling Skills

SKILLS	EVALUATION CRITERIA – COASTAL NAVIGATOR
Trip planning and preparation	Candidate completes the cruise preparation sheets. It is recommended that all the waypoints be listed as well as other information pertinent to the certification cruise. The cruise needs to include departure from a dock or slip, several waypoints (at least 5) and return to a dock or slip. Also required:
Check boat for safety requirements and equipment location	Candidate explains and/or demonstrates the safety, communications, and navigations to everyone on board. <ul style="list-style-type: none"> • VSC Decal • Float Plan (Filed) • Fire Extinguishers • First Aid Kit • Radio and other electronics • Flares • Thru-hull locations • Electrical Panel and Master Battery Switch • Throwable flotation device Lifejackets worn at all times by all onboard.
Weather Check	Candidate uses WX 1 (or local VHF weather channel), newspaper, radio, internet, television (or any reliable means) to confirm weather is within the limits of the boat and crew..
Safe Operation	Candidate operates the boat safely during the trip. Candidate is required to maintain, steer, a heading that maintains his course. He is required to be aware at all times of traffic, other vessels, reefs or shallow areas and changes in weather". Candidate must not focus on computer, chart plotter, radar or GPS to the exclusion of his maintaining his course and looking for other vessels and hazards.
Create a route with several (at least five waypoints) and enter into electronic navigation instrument	Route length should provide adequate time and distance to allow candidate to navigate using a compass and GPS. Route needs to include at least two legs that are identified using traditional methods (Compass, charts, and plotting tools). The minimum length of any leg is ONE nautical mile (unless local conditions dictate otherwise).
Plot the course	Candidate plots the route on a chart using traditional plotting methods (not electronic). All waypoints are properly labeled.
Estimate the expected current for each leg either from tables or electronically	Discussion should include the impacts of current and wind departing from and returning to the slip or dock, as well as during the trip.

Activate route in GPS/Chart Plotter/Laptop Charting Program	Candidate is able to successfully activate the route created.
Check of boat for safe operation and safety requirements	Candidate verifies the boat has all of the required safety equipment. A current VSC is required. Additional equipment such as an anchor, GPS (or laptop with charting software for the area) and current charts for the area are also required. Candidate orients himself or herself with the vessel controls and systems. Proper ventilation times and checks are observed. Vessel fuel level is checked. Boat is verified to be in neutral. Once engine is running, gauges and alarms, as applicable are checked to verify proper system functionality (temperature, charging and oil pressure, etc). Outboard water flow is verified if visible. Specific vessel or generic checklist should be a part of the validation process.
Departure from slip or dock using a spring line	Candidate communicates intent to depart dock and what his or her role is to others onboard and nearby boat(s). Candidate can depart from the dock in a controlled fashion with minimal contact and demonstrates or understands how to use bow, aft and spring lines to assist departure. Fenders are removed from the exterior of the boat once safely away from the dock or slip. Appropriate departure signals shall be demonstrated or simulated. Twin-screw boats depart using a spring line, unless impractical to do so (to properly demonstrate use of spring lines).
Plot GPS Fixes	Candidate properly plots all GPS fixes on the paper chart as they are reached.
Hand Steer following route	Without the use of automatic navigation devices, candidate can follow at least one leg of the route using the GPS/Chartplotter/laptop in chart view.
Move a waypoint (as if to correct for a change of conditions)	While navigating the trip, simulate a need to change at least one waypoint. Candidate can successfully move the waypoint on the electronics in use and adjust course to the new waypoint.
Use GPS Highway display to determine if you are on course	If available use the GPS Highway mode (or other off course indicator) while navigating one leg of the trip. Candidate can determine if course is being maintained and makes appropriate course corrections.
Navigate at least two legs using traditional methods (Compass, charts, and plotting tools).	While underway on one of the legs, the GPS is obscured from the candidate during one leg. Candidate will determine DR position from previous fix and then navigate the remainder of the leg to the next waypoint, and then proceed to the following waypoint. If possible, a fix will be taken between legs, if not a DR position will be placed on the chart. At the end of the two legs, the DR position will be compared with the GPS position. The Coastal Navigation Certifier may continue to monitor electronic systems as a safety backup.

Plot course and take at least one fix (either two or three bearings), plot position on the paper chart (take other bearings as necessary).	While navigating using a compass and charts, the candidate stops the boat, takes two or three bearings and manually plots a position on the paper chart.
Pick one waypoint (or other location) for anchoring and look-up tide depth from tables or electronic programs. Calculate depth of water and rode required.	Candidate selects an appropriate area to anchor on the trip. Determination includes anticipated duration at the anchorage, depths during that time period, the necessary scope, and amount of rode for the existing and anticipated conditions. Data used may originate electronically or from printed tables and charts.
Set the anchor and secure as appropriate for conditions.	Candidate directs or performs deployment of anchor. Positive anchor hookup & set is achieved. Proper scope is used or described for conditions. Anchor line is secured to the bow area. Using the GPS, or other electronic system, set the anchor watch/alarm (if applicable). Candidate should describe protocol in occupied anchorages and an understanding of multiple anchor deployment techniques and appropriate application thereof. If more than one candidate is on the boat, anchoring in groups of two is allowed. If it is not possible to demonstrate anchoring, the candidate will be required to explain the procedures involved.
Set anchor watch/alarm	Using the GPS, or other electronic system, set the anchor watch/alarm (if applicable).
Weigh anchor	While the anchor watch/alarm is still active, candidate directs or performs the weighing of the anchor. Once the boat has moved an appropriate distance, the anchor watch/alarm sounds and is silenced.
Return to Dock	Candidate appropriately directs or performs the following: Candidate deploys fenders prior to approaching dock or slip. Candidate correctly uses the wind and current to assist docking to the extent possible and is able to safely bring the boat into a dock or slip. Speed during docking is judged to be the minimum required to maintain control of the boat. Using the controls, the boat's forward progress is stopped by the candidate, such that lines can be safely secured to the dock. Candidate uses methods appropriate for the area and conditions to secure the boat to the dock or slip.

<p>Moor the vessel</p>	<p>Candidate approaches a mooring or marker used to simulate a mooring and bring boat to a stop with the bow at or immediately adjacent to the mooring such that a person onboard can retrieve the mooring line on a mooring ball and attach it to the bow. Repeat demonstrating proper departure procedures. Candidate should demonstrate appropriate awareness of wind and current effects.</p>
<p>Complete the trip plan</p>	<p>Compare what happened to what was planned and discuss any lessons learned.</p>
<p>Complete Paperwork – Passports, application forms etc.</p>	<p>Candidate completes the required paperwork and submits it to the certifier for approval. Coastal Navigation Certifier completes the candidate’s passport entries as appropriate and submits all documents to the Regional Director (Regional Certifier).</p>
<p>Note additional electronic navigation equipment demonstrated (Radar, AIS). This is not required for certification.</p>	<p>If additional navigation equipment is available on the boat, candidate optionally demonstrates knowledge of use.</p>

Use Coastal Navigator Checklist to document progress during skill demonstrations.

Skill: PD – Using Pyrotechnic Distress Signals

SAFETY:

Flare guns must be handled with care. Keep your finger off the trigger until just before firing. Do not load until ready to fire. Loaded or unloaded, NEVER point it toward yourself, another person or in any direction it would be unsafe to fire a flare. In case of a misfire (trigger pulled but shell does not fire) hold the gun in a safe direction for two full minutes before carefully extracting and properly disposing of the defective shell.

Handheld flares drip extremely hot slag and emit sparks so they must be handled with care and never lit unless they are held over something that will not be harmed by the slag or sparks or if the flare was dropped for any reason.

There are many variations in flares. Be sure to carefully read and follow the instructions for the specific flare or flare gun you are using.

Inert pyrotechnics are to be used for indoor instruction and demonstration of pyrotechnics.

Location: Area where there are no people not involved with the demonstration nearby and no combustibles on the ground. (e.g., a beach or desert area) This demonstration is most efficiently done with a group, perhaps at a squadron or district event, allowing multiple members to be certified at once. It could be combined with the fire extinguisher skill demonstration.

Boat: Not applicable – skill demonstration should be conducted ashore.

Certifier's Qualifications: Should be experienced handling flares and flare guns.

Conditions: Fair weather; light or no wind; daylight.

Caveats:

- **All authorities (Coast Guard, Marine Police, etc.) in the area must be contacted in advance and their permission obtained.** (We do not want the authorities to think an emergency is occurring.)
- **Check regarding local firearm ordinances** to be sure the possession or use of any of the devices ashore does not violate local law.

Crew: Not applicable; each person is certified separately.

Certifier's Role: The certifier should demonstrate proper use of each device and then observe that the member uses it properly. If at any time or for any reason the certifier feels a dangerous situation is developing, the certifier has the authority to terminate the demonstration.

Materials Needed: Recently expired USCG approved distress flares, flare guns and cartridges (also recently expired) and/or hand held flare launchers; heavy fire resistant gloves¹ to hold flares and launchers; safety goggles; a fire extinguisher for use in case of emergency. Either regular aerial flares or parachute flares of any caliber may be used, but all devices must be USCG approved.

Criteria for Success: The member must ignite or fire each device so that it does not endanger anyone or fall in an area where it might start a fire. Any accident or manifestly dangerous action or repeated inability to accomplish a step results in an unsuccessful demonstration. If this occurs, the certifier should offer advice on correcting or avoiding the problems and reschedule.

¹. Depending on the material the gloves are made of, it may be desirable to dampen them before use.

Directions: The certifier should ask the member being certified to do each of the steps listed below. The sequence can be altered based on the situation. If multiple members are being certified, the certifier should have a sign up list with all the information required on the skills form. The certifier then checks off each member as they complete each skill. Each person must use the safety equipment (goggles and gloves) when using the devices. When a member completes the skill demonstration, the certifier signs the members BOC Passport.

Component Skill 1: Use a hand held flare or smoke signal.

Procedure: The certifier dons goggles and ignites the hand held flare or smoke signal, using gloves to hold the flare or smoke signal. Use recently expired flares or smoke signals. For the smoke signal, be sure to hold the device downwind of everyone so the smoke does not reach them. For a flare, be sure to hold the flare so that slag does not drip on the hand or any combustible material. Instruct everyone not to look directly at a burning flare.

Expected Results: Each person being certified does the same as the certifier. Either a smoke signal or a flare will suffice to demonstrate the skill, but both may be used, if desired.

Component Skill 2: Using a flare gun or hand launcher

Procedure: The certifier demonstrates the use of the flare gun and/or launcher, using recently expired flares. The gun or launcher should be held well away from the face. The user wears goggles and heavy gloves. Flare guns should be inspected before use to be sure they are in good condition and that the firing chamber is sealed. (Some flare guns were manufactured with gaps in the joint between the two parts of the gun.) The aerial flares should be directed towards an area that does not have combustible materials or any people nearby.

Expected Results: Each person being certified does the same as the certifier. Firing either a flare gun or hand held launcher is sufficient to demonstrate the skill, but the member may do both, if he or she wishes.

SAMPLE TESTING SCENARIO for CN:

The following is only a sample testing scenario. The order may be altered to fit local conditions (as long as all the requirements listed previously are covered). A mid-point stop is not required – anchoring may be done at any appropriate time.

UNDERWAY

1. Complete pre-departure routines.
2. Depart from slip or dock using a spring line.
3. Activate a route in GPS/Chart Plotter/Laptop Charting Program.
4. Follow a route (hand steer, no auto pilot) with at least two waypoints before the mid-point stop.
5. Move a waypoint along a route (as if to correct for a change of conditions).
6. Monitor off-track error.

MID-POINT STOP

1. Anchor at the pre-selected location. Set the anchor and secure as appropriate for conditions. Estimate height of tide for necessary scope.
2. Set an anchor watch/alarm.
3. Weigh anchor

RETURN TO DOCK USING CHART AND COMPASS.

1. Prepare to return to starting point (two legs).
2. Estimate the effect of the wind or current on the boat and determine the steering correction later.
3. Shortly after leaving the mid-point stop, the GPS/Chartplotter is obscured and the candidate navigates the boat for the next two legs using traditional methods.
4. Plot and label the course line for all the legs of the route.
5. Take one or more fixes (two or three bearings each), plot and label position(s) on the paper chart, and enter position into the planning sheet.
6. Navigate to the final waypoint
7. Return to dock and moor the vessel
8. Compare original plan to what actually happened.