

COASTAL NAVIGATION STANDARD

Objectives

To be able to demonstrate the navigational theory required to safely navigate a vessel in coastal or inland waters. The concepts are introduced in the Intermediate Cruising and Power Standards. The Coastal Navigation Standard is applied practically and tested in the Advanced Cruising Standard.

Prerequisites

None.

You can attain this standard by passing the CYA Coastal Navigation Examination. This is a prerequisite to the Advanced Cruising Standard.

Ashore Knowledge

The candidate must be able to:

1. Explain the chart symbols and conventions on Canadian Hydrographic charts, in accordance with the terminology of *Chart 1*.
2. Identify a source of official Canadian government navigation publications.
3. List the publications required for prudent navigation in the local area, including the following minimum requirements:
 - a) Large scale charts of the area and *Chart 1, Symbols, Terms and Abbreviations*;
 - b) *Sailing Directions*;
 - c) *Tide and Current Tables*;
 - d) *Collision Regulations*;
 - e) Local rules and regulations;
 - f) *List of Lights, Buoys, and Fog Signals*;
 - g) *Radio Aids to Marine Navigation* (if using electronic navigation);
 - h) *Safe Boating Guide*.
4. List the instruments required for prudent navigation in the local area, including the following minimum requirements:
 - a) Steering compass and deviation table
 - b) Hand-bearing compass
 - c) Dividers
 - d) Protractor, plotter or parallel rule
 - e) Watch or clock
 - f) Depth sounder or lead line
 - g) Log/knot-meter
 - h) Pencil/eraser/note book
5. Describe the purpose of *Notices to Mariners*.
6. Use the *Tide and Current Tables* to find:
 - a) Times and heights of tides at reference and secondary ports;
 - b) Direction and rate of current at reference and secondary stations.
7. Convert courses, headings and bearings between true, magnetic, and compass.
8. Check compass deviation by means of a transit bearing.
9. Plot:
 - a) A dead reckoning position on a chart, using speed, time, and course through water;
 - b) The estimated position allowing for the effect of current and leeway.
10. Determine a heading that counteracts:
 - a) Known current;
 - b) Leeway.
11. Given the course through water and speed, and two observed positions, determine the current.
12. Determine:
 - a) Estimated time of arrival (ETA);
 - b) Revised ETA.

13. Plot a chart position from terrestrial objects, using:
 - a) Two or more bearings on different objects taken at one time;
 - b) A running fix on one or two objects;
 - c) One bearing and a transit range;
 - d) One distance (i.e., a sounding, or dipping a light) and one bearing.
14. Use correct plotting and labeling procedures as outlined below.
15. Demonstrate knowledge of passage planning , as follows:
 - a) Prepare a plan of a coastal passage of at least 20 miles in three stages:
 - i) An overall plan on a small scale chart,
 - ii) A detailed plan on a large scale chart,
 - iii) A departure or arrival plan including tide and current information;
 - b) Use transits, lead marks, stern marks, clearing marks, danger/clearing bearings in piloting and passage planning;
 - c) Transfer positions between charts using the nearest compass rose and measuring distances;
 - d) Demonstrate a working knowledge of the Canadian buoyage and aids to navigation systems;
16. With reference to the GPS system:
 - a) Understand the basic operation of GPS to determine position;
 - b) List factors that affect the accuracy of positions given by GPS;
 - c) Identify common GPS applications for navigation and cautions concerning their usage.

CYA Uniform Navigation Terminology

1. **Course:** The direction in which a vessel is steered or is intended to be steered (direction through the water)
2. **Course to Steer:** Course to steer to counteract current and leeway
3. **Heading (HDG):** The direction in which the boat is pointing in any instant
4. **Course to Make Good (CTMG):** The course for planning purposes that indicates the intended track from departure to destination.
5. **Course Made Good (CMG):** The single resultant direction from the point of departure to the point of arrival at any given time.
6. **Line of position (LOP):** A plotted line that the vessel is located on at a specific time, which may be based on a distance off, or the bearing of a charted object of known location.
7. **Speed (S):** The speed of the boat through the water.
8. **Speed Made Good (SMG):** The speed of the boat achieved over the CMG line.
9. **Set (set):** The direction in which the current is flowing.
10. **Drift (DFT):** The speed (in knots) of the current.
11. **Total Drift:** Distance between the DR position and Fix for the same time.
12. **Symbols, Abbreviations & Labeling:**
 - a) **Headings/ directions:** Always 3 numbers followed by:
T = True (default), M = Magnetic, or C = Compass
 - b) **Time:** 24-hour clock, ship time used

13. Positions and Plotting

<u>Item</u>	<u>Symbol</u>	<u>Label (example)</u>
Dead Reckoning		DR TIME (DR 1107)
Estimated Position		EP TIME (EP 1203)
Fix		FIX TIME (Fix 1340)
Running Fix		RFIX TIME (RFix 1107)
Electronic Fix (GPS)		GFIX TIME (GFix 0030)
Electronic Fix (Radar)		RaFIX TIME (RaFix 2230)
Electronic Fix (Loran)		LFIX TIME (LFix 1855)
Waypoint		WPNT NAME (WPNT Alpha)
Course / Speed		C = Course to Steer, S = Speed Course Suffix: T = True (Default) M = Magnetic C = Compass
CMG		CMG = Course Made Good SMG = Speed Made Good
Current		SET = Current Set DFT = Current Drift
Line of Position (LOP)		TIME / BEARING
Advanced Line of Position		ORIGINAL TIME – PRESENT TIME / BEARING

