

B5: Near Shore Marine Navigation – Level 2

(Formerly known as: Advanced Piloting)

1.0 Considerations and Charts

- Challenging conditions and unfamiliar waters
- Chart types and scales
- IALA maritime buoyage system
- Extended cruising considerations
- Sample cruise
- Digital charts

2.0 Electronic Navigation Tools

- Electronic navigation systems
- Chartplotter applications and features
- Computer navigation applications and features
- Other hardware supporting navigation applications.
- Pros and cons of chartplotters versus computer-based navigation system
- Sensors and other instrumentation
- GPS
- Radar
- AIS receiver/transponder
- Depth sounders and sonars
- Other sensors
- Autopilots
- VHF radio and Digital Selective Calling
- Planning and systems issues

3.0 Fixes

- Dead reckoning
- Fixes from bearings
- Running fixes
- Classroom exercise
- GPS fix accuracy
- Radar
- Classroom exercise

4.0 Avoidance Techniques

- Pre-qualifying a boating area
- Danger bearings
- Exercise 4.1: Danger bearing – visible landmark and GPS
- Crosstrack error
- Danger circles
- Exercise 4.2: Danger circles
- Collision bearings
- Putting it all together
- Other techniques using GPS
- Other techniques using radar
- Exercise 4.3: Radar avoidance
- Computer navigation using safe and avoidance areas

5.0 Positioning Techniques

- Plotting position
- Using GPS on the water
- Using radar on the water
- Navigating into the wind and waves

6.0 Working with Tides

- Tides
- Tidal definition
- Tidal datum
- Sources of tidal data
- Canadian tide and current tables
- Use of the tide tables
- US tide tables
- Caution for boaters

7.0 Working with Tidal Currents

- Tidal currents
- Canadian current tables
- Current solutions
- Duration of slack
- Velocity of current at any time
- Quick check to estimate current – the 50/90 rule
- US current tables
- Caution for boaters

8.0 Piloting with Winds and Currents

- Understanding vectors
- Determine current set and drift
- Determine course to steer
- Using GPS to stay on course

Appendix A – Introductory Cruise

Appendix B – West Coast Cruise of the M.S. Aypee

Appendix C – Tide Table References

Appendix D – Tidal Current Table References

Appendix E – Homework Answers

Appendix F – Answers to Cruise

Appendix G – Deck Log

Appendix H – Deviation Table