

Workforms and Plotting Sheets
for use with
Navigation Exercises
for
Practice Underway

www.starpath.com/kindle

David Burch



Copyright © 2009, 2012 David Burch

All rights reserved. No part of this book may be reproduced or transmitted in any form or by any means, electronic or mechanical, including photocopying, recording, or any information storage or retrieval system, without permission in writing from the author.

Published by

Starpath Publications

3050 NW 63rd Street, Seattle, WA 98107

Manufactured in the United States of America

www.starpathpublications.com

Contents

Overview and Instructions.....	5
Basic Chart Work.....	7
CW-1 Use of Chart Catalog.....	7
CW-2 Lat/Lon, range and bearings.....	8
CW-3 Depths and soundings.....	9
CW-4. Buoys.....	10
CW-5. Lighthouses.....	11
CW-6. Coast Pilots and Sailing Directions.....	12
CW-7. Broadcast Notice to Mariners.....	13
Tides and Currents.....	14
TC-1 Tides at anchor.....	14
TC-2 Currents underway.....	15
Radar.....	16
R-1. Check out basic controls.....	16
R-2. Confirm GPS position using Radar Range and Bearing.....	17
R-3. Distinguish buoys and moving vessels.....	18
R-4. Closest Point of Approach.....	19
R-5. Relative motion diagram (rapid radar plotting).....	20
R-6. Radar piloting.....	21
R-7. Position fix with Radar.....	22
Navigation Rules.....	23
NR-1 Reading Assignments.....	23
NR-2. Sound signals underway.....	24
NR-3. Lights Underway.....	25
NR-4. Right of way underway.....	26
NR-5. Rule 19d.....	27
Piloting.....	28
P-1. Bearing Fix.....	28
P-2. LOP by natural ranges.....	29
P-3. Fix by soundings.....	30
P-4. COP from vertical sextant angle.....	31
P-5. Three-body fix by sextant.....	32
Electronic Charting.....	33
EC-1 Basic skills.....	33
EC-2 Route monitoring underway.....	34

GPS Navigation	35
GPS-1 Basic Skills	35
GPS-2 Route monitoring underway	36
GPS-3. Confirm position accuracy	37
Dead Reckoning	38
DR-1. Basic Terms	38
DR-2. ETA to Waypoint	39
DR-3. Magnetic variation	40
DR-4. Compass check on range	41
Weather	42
W-1 VHF Weather Sources	42
W-2 VHF Weather Reports.....	44
W-3 Cloud Spotting.....	47
W-4 Apparent to true wind	48
W-5 Baro comparisons	49
Celestial Navigation	50
CN-1 Star spotting.....	50
CN-2. Twilight times	51
CN-3 Checking Watch Time	52
CN-4. Compass check from sun	53
CN-5. Sunline running fix.....	54
CN-6. Sun-moon fix	55
CN-7. Star-planet fix.....	56
Navigation Challenges	57
NC-1. Unforseen Eventualities	57
Reference List.....	58
General References	58
Personal Logbook.....	59
Plotting Sheets.....	64

Overview and Instructions

Full instructions and individual exercises can be found in the Kindle version of *Navigation Exercises for Practice Underway*.

CW-2 Lat/Lon, range and bearings

#	Date	Chart No / scale	Point 1 Lat/Lon	Point 2 Lat/Lon	R	B (T)	Var
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							
33							

CW-3 Depths and soundings

#	Date	Depth units	Depth at Point 1	Depth at Point 2	Deepest	Shallowest	MHW
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							
13							
14							
15							
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							
31							
32							
33							

Tides and Currents

TC-1 Tides at anchor

Date						
Time						
Lat						
Lon						
Description						
Measured depth						
Draft						
Sum 1						
Charted depth						
Tide height						
Sum 2						
Error						

Date						
Time						
Lat						
Lon						
Description						
Measured depth						
Draft						
Sum 1						
Charted depth						
Tide height						
Sum 2						
Error						

R-6. Radar piloting

#	Date	Time	H	S	Lat/Lon	Description of location
1						
2						
3						
4						
5						
6						
7						
8						
9						
10						
11						
12						
13						
14						
15						
16						
17						

--	--	--	--	--	--	--

#	Description of piloting method used in the situation listed above
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	
11	
12	
13	
14	
15	
16	
17	

Navigation Rules

NR-1 Reading Assignments

Date	Assignment	Rules — Page count
	Part B, Sec I. Rules that apply all times, regardless of visibility	Rules 4 to 10 — 6 pages
	Part B, Sec II. Rules that apply when vessels can see each other	Rules 11 to 18 — 5 pages
	Part C, Lights and Shapes (power, fishing, and sailing)	Rules 23, 25, 26 — 12 pages
	Part C, Lights and Shapes (tow boat lights)	Rule 24 — 10 pages
	Part C, Lights and Shapes (anchored and aground)	Rule 30 — 3 pages
	Part D, Sound and Light Signals (maneuvering and warning)	Rule 34 — 2 pages
	Part D, Sound and Light Signals (“fog signals”)	Rule 35 — 2 pages
	Part D, Sound and Light Signals (distress and getting attention)	Rules 37 and 36 — 2 pages

NR-5. Rule 19d

Date	Assignment	Rules — Page count
	Part B, Sec III. Rules that apply when you cannot see each other	Rule 19 — 1 page

Date	Approach from	Your maneuver assuming target vessel is not in sight visually	Rules reference
	000 R		
	045 R		
	090 R		
	135 R		
	180 R		
	225 R		
	270 R		
	315 R		

Electronic Charting

EC-1 Basic skills

Operation	Date	Time	Operation	Date	Time
Select charts and load chart of choice			R and B boat to point		
Scroll, center, zoom			R and B point to point		
Set scales, windows			Use of Cross Track Error XTE		
Read Lat/Lon of boat position			Use of Tides and Currents		
Set marks, properties, hide/show					
Set up a route, activate a waypoint					
Use of Plan Book					
Monitor GPS input signals					
Display multiple windows					
Split and join routes					
Set up projected boat position					
Use of range rings					

Dead Reckoning

DR-1. Basic Terms

Term	Time	Date	Term	Time	Date
Heading (H)			Knotmeter speed (S)		
Course (C)			Speed over ground (SOG)		
Course over ground			Velocity made good (VMG)		
Bearing to WP			Speed of Advance (SOA)		

Weather

W-1 VHF Weather Sources

Time	Date	Lat/Lon	Description
VHF Chan	Call sign or station ID		Subjects

Time	Date	Lat/Lon	Description
VHF Chan	Call sign or station ID		Subjects

Time	Date	Lat/Lon	Description
VHF Chan	Call sign or station ID		Subjects

Time	Date	Lat/Lon	Description
VHF Chan	Call sign or station ID		Subjects

Time	Date	Lat/Lon	Description
VHF Chan	Call sign or station ID		Subjects

Time	Date	Lat/Lon	Description
VHF Chan	Call sign or station ID		Subjects

Time	Date	Lat/Lon	Description
VHF Chan	Call sign or station ID		Subjects

W-2 VHF Weather Reports

Time	Date	Lat/Lon	Description
Nearest report locations		Time	Wind, seas, weather, barometer
Your own observations =			
Nearest forecast locations			Wind, seas, weather

Time	Date	Lat/Lon	Description
Nearest report locations		Time	Wind, seas, weather, barometer
Your own observations =			
Nearest forecast locations			Wind, seas, weather

Time	Date	Lat/Lon	Description
Nearest report locations		Time	Wind, seas, weather, barometer
Your own observations =			
Nearest forecast locations			Wind, seas, weather

Time	Date	Lat/Lon	Description
Nearest report locations		Time	Wind, seas, weather, barometer
Your own observations =			
Nearest forecast locations			Wind, seas, weather

Time	Date	Lat/Lon	Description
Nearest report locations		Time	Wind, seas, weather, barometer
Your own observations =			
Nearest forecast locations			Wind, seas, weather

Time	Date	Lat/Lon	Description
Nearest report locations		Time	Wind, seas, weather, barometer
Your own observations =			
Nearest forecast locations			Wind, seas, weather

Time	Date	Lat/Lon	Description
Nearest report locations		Time	Wind, seas, weather, barometer
Your own observations =			
Nearest forecast locations			Wind, seas, weather

Time	Date	Lat/Lon	Description
Nearest report locations		Time	Wind, seas, weather, barometer
Your own observations =			
Nearest forecast locations			Wind, seas, weather

Reference List

See Kindle ebook for references

Personal Logbook

See Kindle ebook Logbook instructions

	Day #	Date	Description	Time	Log	Lat/Lon	Course	Speed	Baro
1			Depart						
2			Mid-morning						
3			Mid-day						
4			Mid-afternoon						
5			Anchorage						
6			Depart						
7			Mid-morning						
8			Mid-day						
9			Mid-afternoon						
10			Anchorage						
11			Depart						
12			Mid-morning						
13			Mid-day						
14			Mid-afternoon						
15			Anchorage						
16			Depart						
17			Mid-morning						
18			Mid-day						
19			Mid-afternoon						
20			Anchorage						
21			Depart						
22			Mid-morning						
23			Mid-day						
24			Mid-afternoon						
25			Anchorage						
26			Depart						
27			Mid-morning						
28			Mid-day						
29			Mid-afternoon						
30			Anchorage						
	1	2	3	4	5	6	7	8	9

	AWS	AWA	Location Description and Comments
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
	10	11	12

	Day #	Date	Description	Time	Log	Lat/Lon	Course	Speed	Baro
1			Depart						
2			Mid-morning						
3			Mid-day						
4			Mid-afternoon						
5			Anchorage						
6			Depart						
7			Mid-morning						
8			Mid-day						
9			Mid-afternoon						
10			Anchorage						
11			Depart						
12			Mid-morning						
13			Mid-day						
14			Mid-afternoon						
15			Anchorage						
16			Depart						
17			Mid-morning						
18			Mid-day						
19			Mid-afternoon						
20			Anchorage						
21			Depart						
22			Mid-morning						
23			Mid-day						
24			Mid-afternoon						
25			Anchorage						
26			Depart						
27			Mid-morning						
28			Mid-day						
29			Mid-afternoon						
30			Anchorage						
	1	2	3	4	5	6	7	8	9

	AWS	AWA	Location Description and Comments
1			
2			
3			
4			
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			
26			
27			
28			
29			
30			
	10	11	12

Plotting Sheets

















