

Table of Contents

Table of Contents	v
Acknowledgments	viii
Foreword	ix
Introduction	x
Preface	xi

Part One: Introduction to E-Charting

1. What is E-Charting?	15
Why Add Computer E-Charting?	15
From Kayaks to Mega-Yachts	17
2. The History of Global Position Finding	19
The Development of Position-Finding Systems	19
Loran	20
Global Positioning System (GPS)	20
Differential GPS	21
WAAS Corrections	21
Graphical Displays	21
Chartplotters	22
Multifunction Displays	22
Computer-Based Systems	22
From Paper Charts to Digital Files	23
Government Hydrographic Offices	23

Proprietary Charts	23
The Story Behind Free U.S. Charts	24
An International Vector Chart Standard	25
How Accurate Are Electronic Charts?	25
Chart Surveys	26
Chart Resolution	27
The World is Not Round	27
The Software Pioneers	28
MacSea	28
CAPN	28

Part Two: E-Charting System Components

3. The Four Components of an E-Charting System	31
Hardware	31
Instruments and Sensors	33
Chart Database	33
Application Software	33
Some Getting Started Pointers	34
4. E-Charting Hardware	35
Computer Specifications	35
The CPU	35
Ruggedize It?	36
The Display	37
User Interface	38
Drives and Ports	38
Internet Access	39
WiFi	39
Cellular Network	40
Signal Strength Improvement	41
Operating Systems	42
Is E-Charting Vista Ready?	42
Your Mac is a PC	43
Powering Your PC	43
Hardware Trends	43
5. Instruments and Sensors	45
GPS	46

Autopilot	46
AIS	46
Radar	47
Wind/Speed/Depth/Temperature	48
Video	48
Chartplotters and Beyond	49
Trends in External Sensors	50
6. Charts and Supplemental Data	51
Types of Electronic Charts	51
Raster Navigational Charts	51
BSB4 and BSB5	52
Vector Charts	52
International S-57 and S-63	52
Raster and Vector Compared	53
Encrypting Charts	54
Sources of Electronic Charts	55
Downloading Free NOAA Charts	55
Example: Raster Download	56
RNC Chart Codes	57
Example: Vector Download	57
ENC Chart Codes	57
Downloading Free USACE Charts	57
IENC Chart Codes	57
Digital Nautical Charts	58
ARCS Worldwide Raster Charts	58
Seafarer Charts	59
Canadian Hydrographic Service Charts	59
ENCs for the World	59
Example: The U.S. Great Loop	59
Proprietary Charts	60
World Coverage	60
Regional Coverage	61
Supplemental Data	62
Tide and Current Predictions	62
Shoreside	62
Coast Pilots	63
Satellite Images	63
Aerial Photos	63
Topographic Maps	63

Bathymetrics.....	63
Trends in Digital Cartography.....	64
7. E-Charting Software.....	65
Viewer Software.....	65
Planner Software.....	66
Card-Provided Planners.....	66
Chartplotter-Provided Planners.....	66
E-Charting Planners.....	66
Full-Featured Applications.....	67
Getting Started.....	68
Four Types of User Interface.....	69
Basic Features.....	70
Advanced Features.....	73
Trends in E-Charting Software.....	76

Part Three: E-Charting in Practice

8. Networking and Data Exchange.....	79
The Devil's in the Details.....	79
Data Transfer Formats.....	80
Proprietary Formats.....	80
Integrated GPS Transfer.....	80
CSV or Tab-Delimited Files.....	81
GPX.....	81
KML Files.....	81
Data Transfer Mechanisms.....	82
Physical Transfer.....	82
Network Transfer.....	82
9. Extending the Digital Metaphor.....	83
Government Publications.....	83
Reference Sources.....	84
Nautical Calculators.....	85
Weather Resources.....	85
Online Maps.....	88
Boating Forums.....	89
User-Generated Websites.....	89

10. Putting It All Together.....	91
Scenario 1: Creating Custom Chartkits.....	91
Scenario 2: Planning Ashore Via Flash Cards.....	92
Scenario 3: Piloting with a Standalone Laptop.....	93
Scenario 4: Integrating Select Instruments.....	94
Scenario 5: Planning Extensive Routes.....	96
Scenario 6: Circumnavigating on a Tight Budget.....	97
Scenario 7: Captaining a Large Yacht.....	98
How We E-Chart.....	100

Part Four: Choosing an Application

11. How to Choose an E-Charting Application.....	103
The E-Charting Players.....	103
The Marine Software Gap.....	104
Which Features Matter to You?.....	104
What About My Charts?.....	105
The Reviews.....	106
12. CARIS Easy View.....	107
Getting Started.....	107
Working with Charts.....	107
Assessment.....	108
13. EarthNC.....	109
Getting Started.....	109
Working with Charts.....	110
EarthNC Offline.....	111
Navigating with EarthNC.....	112
Additional Data Layers.....	113
Assessment.....	114
14. SeaClear II.....	115
Getting Started.....	115
Look and Feel.....	116
Working with Charts.....	117
Waypoints and Routes.....	117
Additional Features.....	119
Assessment.....	119
Features at a Glance.....	120

15. DigiBOAT Software-On-Board.....	121
Getting Started.....	121
Look and Feel.....	122
Working with Charts.....	123
Waypoints and Routes.....	124
Additional Features.....	126
Assessment.....	127
Features at a Glance.....	128
16. TIKI Navigator.....	129
Getting Started.....	129
Look and Feel.....	130
Working with Charts.....	131
Waypoints and Routes.....	132
Additional Features.....	132
Assessment.....	133
Features at a Glance.....	134
17. Fugawi Marine ENC.....	135
Getting Started.....	135
Look and Feel.....	136
Working with Charts.....	137
Waypoints and Routes.....	137
Additional Features.....	138
Assessment.....	139
Features at a Glance.....	140
18. NavSim BoatCruiser.....	141
Getting Started.....	141
Look and Feel.....	142
Working with Charts.....	142
Waypoints and Routes.....	143
Additional Features.....	144
Assessment.....	145
Features at a Glance.....	146
19. Coastal Explorer.....	147
Getting Started.....	147
Look and Feel.....	148
Working with Charts.....	149
Waypoints and Routes.....	149
Additional Features.....	150
Assessment.....	151

Part Five: E-Charting Resources

Appendix A: Nautical Reference Library 209
Appendix B: Useful Web Links 213
Glossary of Terms 217
Index 225
About the Authors 231

Features at a Glance	152	Look and Feel	182
20. The Capn	153	Working with Charts	184
Getting Started	154	Waypoints and Routes	184
Look and Feel	154	Additional Features	186
Working with Charts	155	Assessment	187
Waypoints and Routes	157	What's New: MaxSea Time Zero	188
Additional Features	158	Features at a Glance	190
Assessment	159	25. Nobeltec Admiral MAX Pro	191
The Future of Maptech	159	Getting Started	191
Features at a Glance	160	Look and Feel	192
21. Nobeltec VNS MAX Pro	161	Working with Charts	193
Getting Started	161	Waypoints and Routes	194
Look and Feel	162	Additional Features	194
Working with Charts	162	Assessment	195
Waypoints and Routes	164	Features at a Glance	196
Additional Features	164	26. E-Charting on a Mac	197
Assessment	165	NavimaQ	197
Features at a Glance	166	Getting Started	197
22. Chart Navigator Pro	167	Look and Feel	198
Navigating Maptech	167	Working with Charts	198
Getting Started	168	Waypoints and Routes	199
Look and Feel	169	Additional Features	199
Working with Charts	169	Assessment	199
Waypoints and Routes	170	What's Next?	199
Additional Features	170	MacENC	199
Assessment	171	Getting Started	200
The Future of Maptech	171	Look and Feel	200
Features at a Glance	172	Working with Charts	201
23. RayTech RNS	173	Waypoints and Routes	202
Getting Started	173	Additional Features	202
Look and Feel	174	Assessment	203
Working with Charts	175	Features at a Glance NavimaQ	205
Waypoints and Routes	176	Features at a Glance MacENC	206
Additional Features	178		
Assessment	179		
What's Next?	179		
Features at a Glance	180		
24. Furuno MaxSea Explorer	181		
Getting Started	182		