

List of Figures

FIG. 1. PORTS and COMPS stations on the original model grid.	16
FIG. 2. TOP stations on the model grid.	18
FIG. 3. PORTS and COMPS stations on the new model grid.	22
FIG. 4. The 30 day averaged surface velocity for December.	27
FIG. 5. The 30 day averaged bottom velocity for December.	28
FIG. 6. FMDS (external drifter model) vs. drift buoys.	43
FIG. 7. The drifter dispersion; model vs. drift buoys.	44
FIG. 8. TRACKER vs. autonomous drift buoy.	46
FIG. 9. The vertical structure of horizontal velocities, October.	48
FIG. 10. The vertical structure of horizontal velocities, December.	49
FIG. 11. Averaged concentration for October and November.	50
FIG. 12. Averaged concentration for December, Bottom and Surface.	50
FIG. 13. The 30 day average particle accumulation, October.	51
FIG. 14. The 30 day average particle accumulation, November.	52
FIG. 15. The 30 day average particle accumulation, December.	53
FIG. 16. The 30 day average particle accumulation, January.	54
FIG. 17. The 30 day average particle accumulation, February.	55
FIG. 18. SMDS bay-wide normalized Lagrangian and Eulerian time series.	57

FIG. 19. SMDS cell-by-cell Eulerian residence time spatial distribution.	58
FIG. 20. SMDS cell-by-cell Lagrangian residence time spatial distribution.	59
FIG. 21. TMDS bay-wide normalized Lagrangian and Eulerian time series.	61
FIG. 22. TMDS Lagrangian spatial distribution, double mean river input.	67
FIG. 23. TMDS Lagrangian spatial distribution, baseline.	68
FIG. 24. TMDS Lagrangian spatial distribution, zero sub-tidal.	69
FIG. 25. TMDS Lagrangian spatial distribution, zero river input.	70
FIG. 26. TMDS Lagrangian spatial distribution, zero wind, zero sub-tidal.	71
FIG. 27. TMDS Lagrangian spatial distribution, harmonics only.	72
FIG. 28. TMDS Eulerian spatial distribution, double mean river input.	73
FIG. 29. TMDS Eulerian spatial distribution, baseline.	74
FIG. 30. TMDS Eulerian spatial distribution, zero sub-tidal.	75
FIG. 31. TMDS Eulerian spatial distribution, zero river input.	76
FIG. 32. TMDS Eulerian spatial distribution, zero wind, zero sub-tidal.	77
FIG. 33. TMDS Eulerian spatial distribution, harmonics only.	78
FIG. 34. Lagrangian best fit function for both extremes.	91
FIG. 35. Eulerian best fit function for both extremes.	91
FIG. 36. Time series for theoretical superposition of functions.	92
FIG. 37. The functional relation between RT and C/A.	93
FIG. 38. Egmont Key Tide Gage Location.	134
FIG. 39. Egmont Key Tide Gage.	135
FIG. 40. Egmont Key Tide Gage East View.	136

FIG. 41. Egmont Key Tide Gage Electronics.	137
FIG. 42. Egmont Key Tide Gage Up View.	138
FIG. 43. Egmont Key Tide Gage Protective Well.	139
FIG. 44. Autonomous Drifter Specifications.	155
FIG. 45. Autonomous Drifter Exploded View.	157
FIG. 46. Tides during TOP.	170
FIG. 47. Tides during TOP; day 281-291.	171
FIG. 48. Tides during TOP; day 291-301.	172
FIG. 49. Tides during TOP; day 301-311.	173
FIG. 50. Tides during TOP; day 311-321.	174
FIG. 51. Tides during TOP; day 321-331.	175
FIG. 52. Tides during TOP; day 331-341.	176
FIG. 53. Tides during TOP; day 341-351.	177
FIG. 54. Tides during TOP; day 351-361.	178
FIG. 55. Tides during TOP; day 361-371.	179
FIG. 56. Tides during TOP; day 371-381.	180
FIG. 57. Tides during TOP; day 381-393.	181
FIG. 58. Tides during TOP; day 393-403.	182
FIG. 59. Tides during TOP; day 403-413.	183
FIG. 60. Tides during TOP; day 413-423.	184
FIG. 61. Tides during TOP; day 423-433.	185
FIG. 62. Tides during TOP; day 433-443.	186

FIG. 63. Tides during TOP; day 443-453.	187
FIG. 64. Tides during TOP; day 453-463.	188
FIG. 65. Tides during TOP; day 463-473.	189
FIG. 66. Tides during TOP; day 473-483.	190
FIG. 67. Tides during TOP; day 483-493.	191
FIG. 68. Tides during TOP; day 493-503.	192
FIG. 69. Tides during TOP; day 503-513.	193
FIG. 70. Tides during TOP; day 513-523.	194
FIG. 71. Tides during TOP; day 523-533.	195
FIG. 72. Tides during TOP; day 533-543.	196
FIG. 73. Tides during TOP; day 543-553.	197
FIG. 74. Tides during TOP; day 553-563.	198
FIG. 75. Tides during TOP; day 563-573.	199
FIG. 76. Tides during TOP; day 563-583.	200
FIG. 77. Tides during TOP; day 583-593.	201
FIG. 78. Tides during TOP; day 593-603.	202
FIG. 79. Tides during TOP; day 603-611.	203
FIG. 80. River inflow during TOP.	204
FIG. 81. Precipitation and evaporation during TOP.	205
FIG. 82. Precipitation and evaporation during TOP; day 270-300.	206
FIG. 83. Precipitation and evaporation during TOP; day 300-330.	207
FIG. 84. Precipitation and evaporation during TOP; day 330-360.	208

FIG. 85. Precipitation and evaporation during TOP; day 360-390.	209
FIG. 86. Precipitation and evaporation during TOP; day 390-420.	210
FIG. 87. Precipitation and evaporation during TOP; day 420-450.	211
FIG. 88. Precipitation and evaporation during TOP; day 450-480.	212
FIG. 89. Precipitation and evaporation during TOP; day 480-510.	213
FIG. 90. Precipitation and evaporation during TOP; day 510-540.	214
FIG. 91. Precipitation and evaporation during TOP; day 540-570.	215
FIG. 92. Precipitation and evaporation during TOP; day 570-600.	216
FIG. 93. Precipitation and evaporation during TOP; day 600-630.	217
FIG. 94. Wind U and V during TOP; day 280-290.	218
FIG. 95. Wind U and V during TOP; day 290-300.	219
FIG. 96. Wind U and V during TOP; day 300-310.	220
FIG. 97. Wind U and V during TOP; day 310-320.	221
FIG. 98. Wind U and V during TOP; day 320-330.	222
FIG. 99. Wind U and V during TOP; day 330-340.	223
FIG. 100. Wind U and V during TOP; day 340-350.	224
FIG. 101. Wind U and V during TOP; day 350-360.	225
FIG. 102. Wind U and V during TOP; day 360-370.	226
FIG. 103. Wind U and V during TOP; day 370-380.	227
FIG. 104. Wind U and V during TOP; day 380-390.	228
FIG. 105. Wind U and V during TOP; day 390-400.	229
FIG. 106. Wind U and V during TOP; day 400-410.	230

FIG. 107. Wind U and V during TOP; day 410-420.	231
FIG. 108. Wind U and V during TOP; day 420-430.	232
FIG. 109. Wind U and V during TOP; day 430-440.	233
FIG. 110. Wind U and V during TOP; day 440-450.	234
FIG. 111. Wind U and V during TOP; day 450-460.	235
FIG. 112. Wind U and V during TOP; day 460-470.	236
FIG. 113. Wind U and V during TOP; day 470-480.	237
FIG. 114. Wind U and V during TOP; day 480-490.	238
FIG. 115. Wind U and V during TOP; day 490-500.	239
FIG. 116. Wind U and V during TOP; day 500-510.	240
FIG. 117. Wind U and V during TOP; day 510-520.	241
FIG. 118. Wind U and V during TOP; day 520-530.	242
FIG. 119. Wind U and V during TOP; day 530-540.	243
FIG. 120. Wind U and V during TOP; day 540-550.	244
FIG. 121. Wind U and V during TOP; day 550-560.	245
FIG. 122. Wind U and V during TOP; day 560-570.	246
FIG. 123. Wind U and V during TOP; day 570-580.	247
FIG. 124. Wind U and V during TOP; day 580-590.	248
FIG. 125. Wind U and V during TOP; day 590-600.	249
FIG. 126. Wind U and V during TOP; day 600-610.	250
FIG. 127. Salinity during TOP.	251