Offshore Wind Impact on Oceanographic Processes: North Carolina to New York, Volume 2 – RPS: Appendices



U.S. Department of the Interior Bureau of Ocean Energy Management Sterling, VA



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ABOUT THE COVER

Mid-Atlantic Bight Model domain, North Carolina to New York, with bathymetric contours (brown, labels in meters), and offshore Wind Energy Areas included in this study (blue). Used with permission. All rights reserved.

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Contents

А	Hydrodynamic Modeling Calibration and Validation Maps	26
A.1	Sea Surface Height of the Model and Doppio Dataset	26
A.2	Sea Surface Temperature of the Model and Doppio Dataset	50
A.3	Sea Surface Temperature of the Model and NOAA Optimum SST (OISSTv2)	74
A.4	Bottom Temperature of the Model and Doppio Dataset	98
A.5	Surface Salinity of the Model and Doppio Dataset	
A.6	Bottom Salinity of the Model and Doppio Dataset	146
A.7	Surface Current of the Model and Doppio Dataset	
A.8	Surface Current of the Model and HF-Radar Dataset	
A.9	Bottom Current of the Model and Doppio Dataset	218
В	Oceanographic Processes – Time Series Analysis at Specific Locations	242
B.1	Water Temperature	242
B.2	Wind and Current	
B.3	Surface Heat Fluxes	
B.4	Turbulent Vertical Eddy Viscosity	
B.5	Turbulent Kinetic Energy	
B.6	Stability – Richardson Number	
B.7	Thermocline Depth and Strength	
С	Thermal Stratification Maps	
D	Cold Pool Temperature Transect	

List of Figures

Apx Figure 1. Mean sea surface height in February 2018, of the model (left), DOPPIO dataset (middl and difference (right).	e) 26
Apx Figure 2. Mean sea surface height in March 2018, of the model (left), DOPPIO dataset (middle), difference (right).	and 27
Apx Figure 3. Mean sea surface height in April 2018, of the model (left), DOPPIO dataset (middle), a difference (right).	nd 28
Apx Figure 4. Mean sea surface height in May 2018, of the model (left), DOPPIO dataset (middle), a difference (right).	nd 29
Apx Figure 5. Mean sea surface height in June 2018, of the model (left), DOPPIO dataset (middle), a difference (right).	າnd 30
Apx Figure 6. Mean sea surface height in July 2018, of the model (left), DOPPIO dataset (middle), and difference (right).	nd 31
Apx Figure 7. Mean sea surface height in August 2018, of the model (left), DOPPIO dataset (middle) difference (right).	, and 32
Apx Figure 8. Mean sea surface height in September 2018, of the model (left), DOPPIO dataset (mic and difference (right).	ldle), 33
Apx Figure 9. Mean sea surface height in October 2018, of the model (left), DOPPIO dataset (middle and difference (right).	e), 34
Apx Figure 10. Mean sea surface height in November 2018, of the model (left), DOPPIO dataset (min and difference (right).	ddle), 35
Apx Figure 11. Mean sea surface height in December 2018, of the model (left), DOPPIO dataset (mid and difference (right).	ddle), 36
Apx Figure 12. Mean sea surface height in January 2019, of the model (left), DOPPIO dataset (midd and difference (right).	le), 37
Apx Figure 13. Mean sea surface height in February 2019, of the model (left), DOPPIO dataset (mide and difference (right).	dle), 38
Apx Figure 14. Mean sea surface height in March 2019, of the model (left), DOPPIO dataset (middle and difference (right).), 39
Apx Figure 15. Mean sea surface height in April 2019, of the model (left), DOPPIO dataset (middle), difference (right).	and 40
Apx Figure 16. Mean sea surface height in May 2019, of the model (left), DOPPIO dataset (middle), difference (right).	and 41
Apx Figure 17. Mean sea surface height in June 2019, of the model (left), DOPPIO dataset (middle), difference (right).	and 42
Apx Figure 18. Mean sea surface height in July 2019, of the model (left), DOPPIO dataset (middle), a difference (right).	and 43
Apx Figure 19. Mean sea surface height in August 2019, of the model (left), DOPPIO dataset (middle and difference (right).	e), 44
Apx Figure 20. Mean sea surface height in September 2019, of the model (left), DOPPIO dataset (middle), and difference (right).	45
Apx Figure 21. Mean sea surface height in October 2019, of the model (left), DOPPIO dataset (midd and difference (right).	le), 46

Apx Figure 22. Mean sea surface height in November 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figure 23. Mean sea surface height in December 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figure 24. Mean sea surface height in January 2020, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figure 25. Mean surface temperature in February 2018, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figure 26. Mean surface temperature in March 2018, of the model (left), DOPPIO dataset (middle), and difference (right)51
Apx Figure 27. Mean surface temperature in April 2018, of the model (left), DOPPIO dataset (middle), and difference (right)52
Apx Figure 28. Mean surface temperature in May 2018, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figure 29. Mean surface temperature in June 2018, of the model (left), DOPPIO dataset (middle), and difference (right)54
Apx Figure 30. Mean surface temperature in July 2018, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figure 31. Mean surface temperature in August 2018, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figure 32. Mean surface temperature in September 2018, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figure 33. Mean surface temperature in October 2018, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figure 34. Mean surface temperature in November 2018, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figure 35. Mean surface temperature in December 2018, of the model (left), DOPPIO dataset (middle), and difference (right)60
Apx Figure 36. Mean surface temperature in January 2019, of the model (left), DOPPIO dataset (middle), and difference (right)61
Apx Figure 37. Mean surface temperature in February 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figure 38. Mean surface temperature in March 2019, of the model (left), DOPPIO dataset (middle), and difference (right)63
Apx Figure 39. Mean surface temperature in April 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figure 40. Mean surface temperature in May 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figure 41. Mean surface temperature in June 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figure 42. Mean surface temperature in July 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figure 43. Mean surface temperature in August 2019, of the model (left), DOPPIO dataset (middle), and difference (right)

Арх	Figure	44. Mean surface temperature in September 2019, of the model (left), DOPPIO dataset (middle), and difference (right)69
Арх	Figure	45. Mean surface temperature in October 2019, of the model (left), DOPPIO dataset (middle), and difference (right)70
Арх	Figure	46. Mean surface temperature in November 2019, of the model (left), DOPPIO dataset (middle), and difference (right)71
Арх	Figure	47. Mean surface temperature in December 2019, of the model (left), DOPPIO dataset (middle), and difference (right)72
Арх	Figure	48. Mean surface temperature in January 2020, of the model (left), DOPPIO dataset (middle), and difference (right)73
Арх	Figure	49. Mean surface temperature in February 2018, of the model (left), OISSTv2 dataset (middle), and difference (right)74
Арх	Figure	50. Mean surface temperature in March 2018, of the model (left), OISSTv2 dataset (middle), and difference (right)75
Арх	Figure	51. Mean surface temperature in April 2018, of the model (left), OISSTv2 dataset (middle), and difference (right)
Арх	Figure	52. Mean surface temperature in May 2018, of the model (left), OISSTv2 dataset (middle), and difference (right)77
Арх	Figure	53. Mean surface temperature in June 2018, of the model (left), OISSTv2 dataset (middle), and difference (right)
Арх	Figure	54. Mean surface temperature in July 2018, of the model (left), OISSTv2 dataset (middle), and difference (right)
Арх	Figure	55. Mean surface temperature in August 2018, of the model (left), OISSTv2 dataset (middle), and difference (right)80
Арх	Figure	56. Mean surface temperature in September 2018, of the model (left), OISSTv2 dataset (middle), and difference (right)
Арх	Figure	57. Mean surface temperature in October 2018, of the model (left), OISSTv2 dataset (middle), and difference (right)
Арх	Figure	58. Mean surface temperature in November 2018, of the model (left), OISSTv2 dataset (middle), and difference (right)
Арх	Figure	59. Mean surface temperature in December 2018, of the model (left), OISSTv2 dataset (middle), and difference (right)
Арх	Figure	60. Mean surface temperature in January 2019, of the model (left), OISSTv2 dataset (middle), and difference (right)
Арх	Figure	61. Mean surface temperature in February 2019, of the model (left), OISSTv2 dataset (middle), and difference (right)
Арх	Figure	62. Mean surface temperature in March 2019, of the model (left), OISSTv2 dataset (middle), and difference (right)
Арх	Figure	63. Mean surface temperature in April 2019, of the model (left), OISSTv2 dataset (middle), and difference (right)
Арх	Figure	64. Mean surface temperature in May 2019, of the model (left), OISSTv2 dataset (middle), and difference (right)
Арх	Figure	65. Mean surface temperature in June 2019, of the model (left), OISSTv2 dataset (middle), and difference (right)90

Apx Figure 66. Mean surface temperature in July 2019, of the model (left), OISSTv2 dataset (middle) difference (right).), and 91
Apx Figure 67. Mean surface temperature in August 2019, of the model (left), OISSTv2 dataset (mide and difference (right).	dle), 92
Apx Figure 68. Mean surface temperature in September 2019, of the model (left), OISSTv2 dataset (middle), and difference (right).	93
Apx Figure 69. Mean surface temperature in October 2019, of the model (left), OISSTv2 dataset (mid and difference (right)	ddle), 94
Apx Figure 70. Mean surface temperature in November 2019, of the model (left), OISSTv2 dataset (middle), and difference (right).	95
Apx Figure 71. Mean surface temperature in December 2019, of the model (left), OISSTv2 dataset (middle), and difference (right).	96
Apx Figure 72. Mean surface temperature in January 2020, of the model (left), OISSTv2 dataset (mic and difference (right)	ddle), 97
Apx Figure 73. Mean bottom temperature in February 2018, of the model (left), DOPPIO dataset (mid and difference (right)	ddle), 98
Apx Figure 74. Mean bottom temperature in March 2018, of the model (left), DOPPIO dataset (middle and difference (right).	e), 99
Apx Figure 75. Mean bottom temperature in April 2018, of the model (left), DOPPIO dataset (middle) difference (right).	, and 100
Apx Figure 76. Mean bottom temperature in May 2018, of the model (left), DOPPIO dataset (middle) difference (right).	, and 101
Apx Figure 77. Mean bottom temperature in June 2018, of the model (left), DOPPIO dataset (middle) difference (right).), and 102
Apx Figure 78. Mean bottom temperature in July 2018, of the model (left), DOPPIO dataset (middle), difference (right).	, and 103
Apx Figure 79. Mean bottom temperature in August 2018, of the model (left), DOPPIO dataset (midd and difference (right).	lle), 104
Apx Figure 80. Mean bottom temperature in September 2018, of the model (left), DOPPIO dataset (middle), and difference (right).	105
Apx Figure 81. Mean bottom temperature in October 2018, of the model (left), DOPPIO dataset (mide and difference (right).	dle), 106
Apx Figure 82. Mean bottom temperature in November 2018, of the model (left), DOPPIO dataset (middle), and difference (right).	107
Apx Figure 83. Mean bottom temperature in December 2018, of the model (left), DOPPIO dataset (middle), and difference (right).	108
Apx Figure 84. Mean bottom temperature in January 2019, of the model (left), DOPPIO dataset (mide and difference (right).	dle), 109
Apx Figure 85. Mean bottom temperature in February 2019, of the model (left), DOPPIO dataset (mid and difference (right).	ddle), 110
Apx Figure 86. Mean bottom temperature in March 2019, of the model (left), DOPPIO dataset (middle and difference (right).	e), 111
Apx Figure 87. Mean bottom temperature in April 2019, of the model (left), DOPPIO dataset (middle) difference (right).	, and 112

Apx Figure 88. Mean bottom temperature in May 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figure 89. Mean bottom temperature in June 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figure 90. Mean bottom temperature in July 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figure 91. Mean bottom temperature in August 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figure 92. Mean bottom temperature in September 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figure 93. Mean bottom temperature in October 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figure 94. Mean bottom temperature in November 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figure 95. Mean bottom temperature in December 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figure 96. Mean bottom temperature in January 2020, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figure 97. Mean surface salinity in February 2018, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figure 98. Mean surface salinity in March 2018, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figure 99. Mean surface salinity in April 2018, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figure 100. Mean surface salinity in May 2018, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figure 101. Mean surface salinity in June 2018, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figure 102. Mean surface salinity in July 2018, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figure 103. Mean surface salinity in August 2018, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figure 104. Mean surface salinity in September 2018, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figure 105. Mean surface salinity in October 2018, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figure 106. Mean surface salinity in November 2018, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figure 107. Mean surface salinity in December 2018, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figure 108. Mean surface salinity in January 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figure 109. Mean surface salinity in February 2019, of the model (left), DOPPIO dataset (middle), and difference (right)

Apx Figure 110. Mean surface salinity in March difference (right).	a 2019, of the model (left), DOPPIO dataset (middle), and
Apx Figure 111. Mean surface salinity in April 2 difference (right).	2019, of the model (left), DOPPIO dataset (middle), and
Apx Figure 112. Mean surface salinity in May 2 difference (right).	2019, of the model (left), DOPPIO dataset (middle), and
Apx Figure 113. Mean surface salinity in June a difference (right).	2019, of the model (left), DOPPIO dataset (middle), and
Apx Figure 114. Mean surface salinity in July 2 difference (right)	019, of the model (left), DOPPIO dataset (middle), and
Apx Figure 115. Mean surface salinity in Augus difference (right)	st 2019, of the model (left), DOPPIO dataset (middle), and
Apx Figure 116. Mean surface salinity in Septe and difference (right)	mber 2019, of the model (left), DOPPIO dataset (middle),
Apx Figure 117, Mean surface salinity in Octob difference (right)	er 2019, of the model (left), DOPPIO dataset (middle), and
Apx Figure 118. Mean surface salinity in Nover and difference (right)	nber 2019, of the model (left), DOPPIO dataset (middle),
Apx Figure 119. Mean surface salinity in Decer and difference (right)	mber 2019, of the model (left), DOPPIO dataset (middle),
Apx Figure 120. Mean surface salinity in Janua difference (right)	ry 2020, of the model (left), DOPPIO dataset (middle), and
Apx Figure 121. Mean bottom salinity in Februa and difference (right)	ary 2018, of the model (left), DOPPIO dataset (middle),
Apx Figure 122. Mean bottom salinity in March difference (right)	2018, of the model (left), DOPPIO dataset (middle), and
Apx Figure 123. Mean bottom salinity in April 2 difference (right)	018, of the model (left), DOPPIO dataset (middle), and
Apx Figure 124. Mean bottom salinity in May 2 difference (right)	018, of the model (left), DOPPIO dataset (middle), and
Apx Figure 125. Mean bottom salinity in June 2 difference (right).	2018, of the model (left), DOPPIO dataset (middle), and
Apx Figure 126. Mean bottom salinity in July 20 difference (right)	018, of the model (left), DOPPIO dataset (middle), and
Apx Figure 127. Mean bottom salinity in Augus difference (right).	t 2018, of the model (left), DOPPIO dataset (middle), and
Apx Figure 128. Mean bottom salinity in Septer and difference (right)	mber 2018, of the model (left), DOPPIO dataset (middle),
Apx Figure 129. Mean bottom salinity in Octob difference (right)	er 2018, of the model (left), DOPPIO dataset (middle), and
Apx Figure 130. Mean bottom salinity in Noven and difference (right)	nber 2018, of the model (left), DOPPIO dataset (middle),
Apx Figure 131. Mean bottom salinity in Decen and difference (right)	nber 2018, of the model (left), DOPPIO dataset (middle),

Арх	Figure	132. Mean bottom salinity in January 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Арх	Figure	133. Mean bottom salinity in February 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Арх	Figure	134. Mean bottom salinity in March 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Арх	Figure	135. Mean bottom salinity in April 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Арх	Figure	136. Mean bottom salinity in May 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Арх	Figure	137. Mean bottom salinity in June 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Арх	Figure	138. Mean bottom salinity in July 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Арх	Figure	139. Mean bottom salinity in August 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Арх	Figure	140. Mean bottom salinity in September 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Арх	Figure	141. Mean bottom salinity in October 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Арх	Figure	142. Mean bottom salinity in November 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Арх	Figure	143. Mean bottom salinity in December 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Арх	Figure	144. Mean bottom salinity in January 2020, of the model (left), DOPPIO dataset (middle), and difference (right)
Арх	Figure	145. Mean surface velocity in February 2018, of the model (left), DOPPIO dataset (middle), and difference (right)
Арх	Figure	146. Mean surface velocity in March 2018, of the model (left), DOPPIO dataset (middle), and difference (right)
Арх	Figure	147. Mean surface velocity in April 2018, of the model (left), DOPPIO dataset (middle), and difference (right)
Арх	Figure	148. Mean surface velocity in May 2018, of the model (left), DOPPIO dataset (middle), and difference (right)
Арх	Figure	149. Mean surface velocity in June 2018, of the model (left), DOPPIO dataset (middle), and difference (right)
Арх	Figure	150. Mean surface velocity in July 2018, of the model (left), DOPPIO dataset (middle), and difference (right)
Арх	Figure	151. Mean surface velocity in August 2018, of the model (left), DOPPIO dataset (middle), and difference (right)
Арх	Figure	152. Mean surface velocity in September 2018, of the model (left), DOPPIO dataset (middle), and difference (right)
Арх	Figure	153. Mean surface velocity in October 2018, of the model (left), DOPPIO dataset (middle), and difference (right)

Apx Figu	re 154. Mean surface velocity in November 2018, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figu	re 155. Mean surface velocity in December 2018, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figu	re 156. Mean surface velocity in January 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figu	re 157. Mean surface velocity in February 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figu	re 158. Mean surface velocity in March 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figu	re 159. Mean surface velocity in April 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figu	re 160. Mean surface velocity in May 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figu	re 161. Mean surface velocity in June 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figu	re 162. Mean surface velocity in July 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figu	re 163. Mean surface velocity in August 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figu	re 164. Mean surface velocity in September 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figu	re 165. Mean surface velocity in October 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figu	re 166. Mean surface velocity in November 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figu	re 167. Mean surface velocity in December 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figu	re 168. Mean surface velocity in January 2020, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figu	re 169. Mean surface velocity in February 2018, of the model (left), CODAR dataset (middle), and difference (right)
Apx Figu	re 170. Mean surface velocity in March 2018, of the model (left), CODAR dataset (middle), and difference (right)
Apx Figu	re 171. Mean surface velocity in April 2018, of the model (left), CODAR dataset (middle), and difference (right)
Apx Figu	re 172. Mean surface velocity in May 2018, of the model (left), CODAR dataset (middle), and difference (right)
Apx Figu	re 173. Mean surface velocity in June 2018, of the model (left), CODAR dataset (middle), and difference (right)
Apx Figu	re 174. Mean surface velocity in July 2018, of the model (left), CODAR dataset (middle), and difference (right)
Apx Figu	re 175. Mean surface velocity in August 2018, of the model (left), CODAR dataset (middle), and difference (right)

Apx Figure	176. Mean surface velocity in September 2018, of the model (left), CODAR dataset (middle), and difference (right)
Apx Figure	177. Mean surface velocity in October 2018, of the model (left), CODAR dataset (middle), and difference (right)
Apx Figure	178. Mean surface velocity in November 2018, of the model (left), CODAR dataset (middle), and difference (right)
Apx Figure	179. Mean surface velocity in December 2018, of the model (left), CODAR dataset (middle), and difference (right)
Apx Figure	180. Mean surface velocity in January 2019, of the model (left), CODAR dataset (middle), and difference (right)
Apx Figure	181. Mean surface velocity in February 2019, of the model (left), CODAR dataset (middle), and difference (right)
Apx Figure	182. Mean surface velocity in March 2019, of the model (left), CODAR dataset (middle), and difference (right)
Apx Figure	183. Mean surface velocity in April 2019, of the model (left), CODAR dataset (middle), and difference (right)
Apx Figure	184. Mean surface velocity in May 2019, of the model (left), CODAR dataset (middle), and difference (right)
Apx Figure	185. Mean surface velocity in June 2019, of the model (left), CODAR dataset (middle), and difference (right)
Apx Figure	186. Mean surface velocity in July 2019, of the model (left), CODAR dataset (middle), and difference (right)
Apx Figure	187. Mean surface velocity in August 2019, of the model (left), CODAR dataset (middle), and difference (right)
Apx Figure	188. Mean surface velocity in September 2019, of the model (left), CODAR dataset (middle), and difference (right)
Apx Figure	189. Mean surface velocity in October 2019, of the model (left), CODAR dataset (middle), and difference (right)
Apx Figure	190. Mean surface velocity in November 2019, of the model (left), CODAR dataset (middle), and difference (right)
Apx Figure	191. Mean surface velocity in December 2019, of the model (left), CODAR dataset (middle), and difference (right)
Apx Figure	192. Mean surface velocity in January 2020, of the model (left), CODAR dataset (middle), and difference (right)
Apx Figure	193. Mean bottom velocity in February 2018, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figure	194. Mean bottom velocity in March 2018, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figure	195. Mean bottom velocity in April 2018, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figure	196. Mean bottom velocity in May 2018, of the model (left), DOPPIO dataset (middle), and difference (right)
Apx Figure	197. Mean bottom velocity in June 2018, of the model (left), DOPPIO dataset (middle), and difference (right)

Арх	Figure	198. Mean bottom velocity in July 2018, of the model (left), DOPPIO dataset (middle), and difference (right)
Арх	Figure	199. Mean bottom velocity in August 2018, of the model (left), DOPPIO dataset (middle), and difference (right)
Арх	Figure	200. Mean bottom velocity in September 2018, of the model (left), DOPPIO dataset (middle), and difference (right)
Арх	Figure	201. Mean bottom velocity in October 2018, of the model (left), DOPPIO dataset (middle), and difference (right)
Арх	Figure	202. Mean bottom velocity in November 2018, of the model (left), DOPPIO dataset (middle), and difference (right)
Арх	Figure	203. Mean bottom velocity in December 2018, of the model (left), DOPPIO dataset (middle), and difference (right)
Арх	Figure	204. Mean bottom velocity in January 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Арх	Figure	205. Mean bottom velocity in February 2019, of the model (left), DOPPIO dataset (middle), and difference (right)230
Арх	Figure	206. Mean bottom velocity in March 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Арх	Figure	207. Mean bottom velocity in April 2019, of the model (left), DOPPIO dataset (middle), and difference (right)232
Арх	Figure	208. Mean bottom velocity in May 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Арх	Figure	209. Mean bottom velocity in June 2019, of the model (left), DOPPIO dataset (middle), and difference (right)234
Арх	Figure	210. Mean bottom velocity in July 2019, of the model (left), DOPPIO dataset (middle), and difference (right)235
Арх	Figure	211. Mean bottom velocity in August 2019, of the model (left), DOPPIO dataset (middle), and difference (right)236
Арх	Figure	212. Mean bottom velocity in September 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Арх	Figure	213. Mean bottom velocity in October 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Арх	Figure	214. Mean bottom velocity in November 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Арх	Figure	215. Mean bottom velocity in December 2019, of the model (left), DOPPIO dataset (middle), and difference (right)
Арх	Figure	216. Mean bottom velocity in January 2020, of the model (left), DOPPIO dataset (middle), and difference (right)
Арх	Figure	217. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 5
Арх	Figure	218. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 6

Apx Figure 2	219. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 7
Apx Figure 2	220. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 9245
Apx Figure 2	221. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 10246
Apx Figure 2	222. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 11247
Apx Figure 2	223. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 12248
Apx Figure 2	224. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 13249
Apx Figure 2	225. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 14250
Apx Figure 2	226. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 15
Apx Figure 2	227. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 16252
Apx Figure 2	228. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 17253
Apx Figure 2	229. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 19254
Apx Figure 2	230. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 20
Apx Figure 2	231. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 21256
Apx Figure 2	232. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 22
Apx Figure 2	233. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 23
Apx Figure 2	234. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 24

Apx Figure 235. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 25	0
Apx Figure 236. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 26267	1
Apx Figure 237. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 27262	2
Apx Figure 238. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 28263	3
Apx Figure 239. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 5	4
Apx Figure 240. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 6	5
Apx Figure 241. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 7266	6
Apx Figure 242. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 9	7
Apx Figure 243. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 10	8
Apx Figure 244. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 11265	9
Apx Figure 245. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 12270	0
Apx Figure 246. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 13	1
Apx Figure 247. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 14	2
Apx Figure 248. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 15	3
Apx Figure 249. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 16	4
Apx Figure 250. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 17	5

Apx Figure 251. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 19
Apx Figure 252. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 20
Apx Figure 253. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 21
Apx Figure 254. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 22
Apx Figure 255. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 23
Apx Figure 256. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 24
Apx Figure 257. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 25
Apx Figure 258. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 26
Apx Figure 259. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 27
Apx Figure 260. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 28
Apx Figure 261. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 5
Apx Figure 262. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 6
Apx Figure 263. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 7
Apx Figure 264. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 9
Apx Figure 265. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 10
Apx Figure 266. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 11
Apx Figure 267. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 12
Apx Figure 268. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 13

Apx Figure 269. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 14
Apx Figure 270. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 15
Apx Figure 271. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 16
Apx Figure 272. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 17
Apx Figure 273. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 19
Apx Figure 274. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 20
Apx Figure 275. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 21
Apx Figure 276. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 22
Apx Figure 277. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 23
Apx Figure 278. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 24
Apx Figure 279. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 25
Apx Figure 280. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 26
Apx Figure 281. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 27
Apx Figure 282. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 28
Apx Figure 283. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity (surface and bottom) at station 5
Apx Figure 284. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity (surface and bottom) at station 6
Apx Figure 285. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity (surface and bottom) at station 7
Apx Figure 286. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity (surface and bottom) at station 9
Apx Figure 287. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity (surface and bottom) at station 10
Apx Figure 288. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity (surface and bottom) at station 11

Apx Figure	289. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity bottom) at station 12	(middle (surface	panels) and 314
Apx Figure	290. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity bottom) at station 13	(middle (surface	panels) and 315
Apx Figure :	291. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity bottom) at station 14	(middle (surface	panels) and 316
Apx Figure :	292. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity bottom) at station 15	(middle (surface	panels) and 317
Apx Figure	293. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity bottom) at station 16	(middle (surface	panels) and 318
Apx Figure	294. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity bottom) at station 17	(middle (surface	panels) and 319
Apx Figure	295. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity bottom) at station 19	(middle (surface	panels) and 320
Apx Figure	296. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity bottom) at station 20	(middle (surface	panels) and 321
Apx Figure	297. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity bottom) at station 21	(middle (surface	panels) and 322
Apx Figure	298. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity bottom) at station 22	(middle (surface	panels) and 323
Apx Figure	299. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity bottom) at station 23	(middle (surface	panels) and 324
Apx Figure	300. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity bottom) at station 24	(middle (surface	panels) and 325
Apx Figure	301. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity bottom) at station 25	(middle (surface	panels) and 326
Apx Figure	302. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity bottom) at station 26	(middle (surface	panels) and 327
Apx Figure	303. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity bottom) at station 27	(middle (surface	panels) and 328
Apx Figure	304. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity bottom) at station 28	(middle (surface	panels) and 329

Apx Figure 325. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for TKE (surface and bottom) at station 27........350

Apx Figure 327. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 - baseline (right panels) for Richardson Number (surface and bottom) at Apx Figure 328. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 - baseline (right panels) for Richardson Number (surface and bottom) at Apx Figure 329. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 - baseline (right panels) for Richardson Number (surface and bottom) at Apx Figure 330. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 - baseline (right panels) for Richardson Number (surface and bottom) at Apx Figure 331. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 - baseline (right panels) for Richardson Number (surface and bottom) at Apx Figure 332. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 - baseline (right panels) for Richardson Number (surface and bottom) at Apx Figure 333. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 - baseline (right panels) for Richardson Number (surface and bottom) at Apx Figure 334. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 - baseline (right panels) for Richardson Number (surface and bottom) at Apx Figure 335. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 - baseline (right panels) for Richardson Number (surface and bottom) at Apx Figure 336. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 - baseline (right panels) for Richardson Number (surface and bottom) at Apx Figure 337. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 - baseline (right panels) for Richardson Number (surface and bottom) at Apx Figure 338. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 - baseline (right panels) for Richardson Number (surface and bottom) at Apx Figure 339. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 - baseline (right panels) for Richardson Number (surface and bottom) at Apx Figure 340. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 - baseline (right panels) for Richardson Number (surface and bottom) at Apx Figure 341. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 - baseline (right panels) for Richardson Number (surface and bottom) at Apx Figure 342. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 - baseline (right panels) for Richardson Number (surface and bottom) at

Apx Figure 343. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for Richardson Number (surface and bottom) at station 23.
Apx Figure 344. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for Richardson Number (surface and bottom) at station 24.

Apx Figure 349. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 5...374

Apx Figure 350. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 6...375

Apx Figure 351. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 7...376

Apx Figure 352. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 9...377

Apx Figure 353. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 10. 378

Apx Figure 354. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 11. 379

Apx Figure 355. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 12. 380

Apx Figure 356. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 13. 381

Apx Figure 357. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 14. 382

Apx Figure 358. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 15. 383

Apx Figure 359. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 16. 384

Apx Figure 360. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 17. 385

Apx Figure 361. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 19. 386

Apx Figure 362. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 20. 387

Apx Figure 363. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 21. 388
Apx Figure 364. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 22. 389
Apx Figure 365. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 23. 390
Apx Figure 366. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 24. 391
Apx Figure 367. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 25. 392
Apx Figure 368. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 26. 393
Apx Figure 369. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 27. 394
Apx Figure 370. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 28. 395
Apx Figure 371. Change in temperature delta between surface and bottom for baseline conditions (no windfarms) compared to Scenario 2 (partial wind farm build out) and Scenario 3 (full windfarm buildout) for February 2018
Apx Figure 372. Change in temperature delta between surface and bottom for baseline conditions (no windfarms) compared to Scenario 2 (partial wind farm build out) and Scenario 3 (full windfarm buildout) for March 2018
Apx Figure 373. Change in temperature delta between surface and bottom for baseline conditions (no windfarms) compared to Scenario 2 (partial wind farm build out) and Scenario 3 (full windfarm buildout) for April 2018
Apx Figure 374. Change in temperature delta between surface and bottom for baseline conditions (no windfarms) compared to Scenario 2 (partial wind farm build out) and Scenario 3 (full windfarm buildout) for May 2018
Apx Figure 375. Change in temperature delta between surface and bottom for baseline conditions (no windfarms) compared to Scenario 2 (partial wind farm build out) and Scenario 3 (full windfarm buildout) for June 2018
Apx Figure 376. Change in temperature delta between surface and bottom for baseline conditions (no windfarms) compared to Scenario 2 (partial wind farm build out) and Scenario 3 (full windfarm buildout) for July 2018
Apx Figure 377. Change in temperature delta between surface and bottom for baseline conditions (no windfarms) compared to Scenario 2 (partial wind farm build out) and Scenario 3 (full windfarm buildout) for August 2018
Apx Figure 378. Change in temperature delta between surface and bottom for baseline conditions (no windfarms) compared to Scenario 2 (partial wind farm build out) and Scenario 3 (full windfarm buildout) for September 2018
Apx Figure 379. Change in temperature delta between surface and bottom for baseline conditions (no windfarms) compared to Scenario 2 (partial wind farm build out) and Scenario 3 (full windfarm buildout) for October 2018
Apx Figure 380. Change in temperature delta between surface and bottom for baseline conditions (no windfarms) compared to Scenario 2 (partial wind farm build out) and Scenario 3 (full windfarm buildout) for November 2018

Apx Figure 381. Change in temperature delta between surface	ce and bottom for baseline conditions (no
windfarms) compared to Scenario 2 (partial win	d farm build out) and Scenario 3 (full
windfarm buildout) for December 2018	406
Apx Figure 382. Change in temperature delta between surface	ce and bottom for baseline conditions (no
windfarms) compared to Scenario 2 (partial win	d farm build out) and Scenario 3 (full
windfarm buildout) for January 2019	407
Apx Figure 383. Change in temperature delta between surface	ce and bottom for baseline conditions (no
windfarms) compared to Scenario 2 (partial win	d farm build out) and Scenario 3 (full
windfarm buildout) for February 2019	408
Apx Figure 384. Change in temperature delta between surface	ce and bottom for baseline conditions (no
windfarms) compared to Scenario 2 (partial win	d farm build out) and Scenario 3 (full
windfarm buildout) for March 2019	409
Apx Figure 385. Change in temperature delta between surface	ce and bottom for baseline conditions (no
windfarms) compared to Scenario 2 (partial win	d farm build out) and Scenario 3 (full
windfarm buildout) for April 2019	410
Apx Figure 386. Change in temperature delta between surface	ce and bottom for baseline conditions (no
windfarms) compared to Scenario 2 (partial win	d farm build out) and Scenario 3 (full
windfarm buildout) for May 2019	411
Apx Figure 387. Change in temperature delta between surface	ce and bottom for baseline conditions (no
windfarms) compared to Scenario 2 (partial win	d farm build out) and Scenario 3 (full
windfarm buildout) for June 2019	412
Apx Figure 388. Change in temperature delta between surface	ce and bottom for baseline conditions (no
windfarms) compared to Scenario 2 (partial win	d farm build out) and Scenario 3 (full
windfarm buildout) for July 2019	413
Apx Figure 389. Change in temperature delta between surface	ce and bottom for baseline conditions (no
windfarms) compared to Scenario 2 (partial win	d farm build out) and Scenario 3 (full
windfarm buildout) for August 2019	414
Apx Figure 390. Change in temperature delta between surface	ce and bottom for baseline conditions (no
windfarms) compared to Scenario 2 (partial win	d farm build out) and Scenario 3 (full
windfarm buildout) for September 2019	415
Apx Figure 391. Change in temperature delta between surface	ce and bottom for baseline conditions (no
windfarms) compared to Scenario 2 (partial win	d farm build out) and Scenario 3 (full
windfarm buildout) for October 2019	416
Apx Figure 392. Change in temperature delta between surface	ce and bottom for baseline conditions (no
windfarms) compared to Scenario 2 (partial win	d farm build out) and Scenario 3 (full
windfarm buildout) for November 2019	417
Apx Figure 393. Change in temperature delta between surface	ce and bottom for baseline conditions (no
windfarms) compared to Scenario 2 (partial win	d farm build out) and Scenario 3 (full
windfarm buildout) for December 2019	418
Apx Figure 394. Change in temperature delta between surface	ce and bottom for baseline conditions (no
windfarms) compared to Scenario 2 (partial win	d farm build out) and Scenario 3 (full
windfarm buildout) for January 2020	419
Apx Figure 395. Temperature contours under baseline (solid	d black line) and scenario 2 (dashed blue
line) conditions, from March to October 2018, at	t transect 1420
Apx Figure 396. Temperature contours under baseline (solid conditions, from March to October 2019, at tran	black line) and scenario 2 (dashed blue line) sect 1421
Apx Figure 397. Temperature contours under baseline (solid conditions, from March to October 2018, at tran	black line) and scenario 3 (dashed blue line) sect 1422

Apx Figure 398. Temperature contours under baseline (solid black line) and scenario 3 (dashed blue line) conditions, from March to October 2019, at transect 1
Apx Figure 399. Temperature contours baseline (solid black line) and scenario 2 (dashed blue line) conditions, from March to October 2019, at transect 2
Apx Figure 400. Temperature contours under baseline (solid black line) and scenario 3 (dashed blue line) conditions, from March to October 2019, at transect 2
Apx Figure 401. Temperature contours under baseline (solid black line) and scenario 2 (dashed blue line) conditions, from March to October 2018, at transect 3
Apx Figure 402. Temperature contours under baseline (solid black line) and scenario 2 (dashed blue line) conditions, from March to October 2019, at transect 3
Apx Figure 403. Temperature contours under baseline (solid black line) and scenario 3 (dashed blue line) conditions, from March to October 2018, at transect 3
Apx Figure 404. Temperature contours under baseline (solid black line) and scenario 3 (dashed blue line) conditions, from March to October 2019, at transect 3
Apx Figure 405. Temperature contours under baseline (solid black line) and scenario 2 (dashed blue line) conditions, from March to October 2018, at transect 4
Apx Figure 406. Temperature contours under baseline (solid black line) and scenario 2 (dashed blue line) conditions, from March to October 2019, at transect 4
Apx Figure 407. Temperature contours under baseline (solid black line) and scenario 3 (dashed blue line) conditions, from March to October 2018, at transect 4
Apx Figure 408. Temperature contours under baseline (solid black line) and scenario 3 (dashed blue line) conditions, from March to October 2019, at transect 4

A Hydrodynamic Modeling Calibration and Validation Maps

A.1 Sea Surface Height of the Model and Doppio Dataset



Apx Figure 1. Mean sea surface height in February 2018, of the model (left), DOPPIO dataset (middle) and difference (right).



March 2018

Apx Figure 2. Mean sea surface height in March 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



April 2018

Apx Figure 3. Mean sea surface height in April 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 4. Mean sea surface height in May 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 5. Mean sea surface height in June 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 6. Mean sea surface height in July 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



August 2018

Apx Figure 7. Mean sea surface height in August 2018, of the model (left), DOPPIO dataset (middle), and difference (right).





Apx Figure 8. Mean sea surface height in September 2018, of the model (left), DOPPIO dataset (middle), and difference (right).





Apx Figure 9. Mean sea surface height in October 2018, of the model (left), DOPPIO dataset (middle), and difference (right).





Apx Figure 10. Mean sea surface height in November 2018, of the model (left), DOPPIO dataset (middle), and difference (right).





Apx Figure 11. Mean sea surface height in December 2018, of the model (left), DOPPIO dataset (middle), and difference (right).


January 2019

Apx Figure 12. Mean sea surface height in January 2019, of the model (left), DOPPIO dataset (middle), and difference (right).





Apx Figure 13. Mean sea surface height in February 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



March 2019

Apx Figure 14. Mean sea surface height in March 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 15. Mean sea surface height in April 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 16. Mean sea surface height in May 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 17. Mean sea surface height in June 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 18. Mean sea surface height in July 2019, of the model (left), DOPPIO dataset (middle), and difference (right).





Apx Figure 19. Mean sea surface height in August 2019, of the model (left), DOPPIO dataset (middle), and difference (right).

September 2019



Apx Figure 20. Mean sea surface height in September 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



October 2019

Apx Figure 21. Mean sea surface height in October 2019, of the model (left), DOPPIO dataset (middle), and difference (right).





Apx Figure 22. Mean sea surface height in November 2019, of the model (left), DOPPIO dataset (middle), and difference (right).





Apx Figure 23. Mean sea surface height in December 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



January 2020

Apx Figure 24. Mean sea surface height in January 2020, of the model (left), DOPPIO dataset (middle), and difference (right).

A.2 Sea Surface Temperature of the Model and Doppio Dataset



February 2018

Apx Figure 25. Mean surface temperature in February 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 26. Mean surface temperature in March 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 277. Mean surface temperature in April 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 28. Mean surface temperature in May 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 29. Mean surface temperature in June 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 30. Mean surface temperature in July 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 31. Mean surface temperature in August 2018, of the model (left), DOPPIO dataset (middle), and difference (right).





Apx Figure 32. Mean surface temperature in September 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 33. Mean surface temperature in October 2018, of the model (left), DOPPIO dataset (middle), and difference (right).





Apx Figure 34. Mean surface temperature in November 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



December 2018

Apx Figure 35. Mean surface temperature in December 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 36. Mean surface temperature in January 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



February 2019

Apx Figure 37. Mean surface temperature in February 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 38. Mean surface temperature in March 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 39. Mean surface temperature in April 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 40. Mean surface temperature in May 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 41. Mean surface temperature in June 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 42. Mean surface temperature in July 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 43. Mean surface temperature in August 2019, of the model (left), DOPPIO dataset (middle), and difference (right).





Apx Figure 44. Mean surface temperature in September 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 45. Mean surface temperature in October 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



November 2019

Apx Figure 46. Mean surface temperature in November 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



December 2019

Apx Figure 47. Mean surface temperature in December 2019, of the model (left), DOPPIO dataset (middle), and difference (right).


Apx Figure 48. Mean surface temperature in January 2020, of the model (left), DOPPIO dataset (middle), and difference (right).

A.3 Sea Surface Temperature of the Model and NOAA Optimum SST (OISSTv2)



February 2018

Apx Figure 49. Mean surface temperature in February 2018, of the model (left), OISSTv2 dataset (middle), and difference (right).





Apx Figure 50. Mean surface temperature in March 2018, of the model (left), OISSTv2 dataset (middle), and difference (right).



Apx Figure 51. Mean surface temperature in April 2018, of the model (left), OISSTv2 dataset (middle), and difference (right).



Apx Figure 52. Mean surface temperature in May 2018, of the model (left), OISSTv2 dataset (middle), and difference (right).

77



Apx Figure 53. Mean surface temperature in June 2018, of the model (left), OISSTv2 dataset (middle), and difference (right).

78



Apx Figure 54. Mean surface temperature in July 2018, of the model (left), OISSTv2 dataset (middle), and difference (right).



Apx Figure 55. Mean surface temperature in August 2018, of the model (left), OISSTv2 dataset (middle), and difference (right).

September 2018



Apx Figure 56. Mean surface temperature in September 2018, of the model (left), OISSTv2 dataset (middle), and difference (right).





Apx Figure 57. Mean surface temperature in October 2018, of the model (left), OISSTv2 dataset (middle), and difference (right).

November 2018



Apx Figure 58. Mean surface temperature in November 2018, of the model (left), OISSTv2 dataset (middle), and difference (right).

December 2018



Apx Figure 59. Mean surface temperature in December 2018, of the model (left), OISSTv2 dataset (middle), and difference (right).

January 2019



Apx Figure 60. Mean surface temperature in January 2019, of the model (left), OISSTv2 dataset (middle), and difference (right).

February 2019



Apx Figure 61. Mean surface temperature in February 2019, of the model (left), OISSTv2 dataset (middle), and difference (right).





Apx Figure 62. Mean surface temperature in March 2019, of the model (left), OISSTv2 dataset (middle), and difference (right).



Apx Figure 63. Mean surface temperature in April 2019, of the model (left), OISSTv2 dataset (middle), and difference (right).



Apx Figure 64. Mean surface temperature in May 2019, of the model (left), OISSTv2 dataset (middle), and difference (right).



Apx Figure 65. Mean surface temperature in June 2019, of the model (left), OISSTv2 dataset (middle), and difference (right).

90



Apx Figure 66. Mean surface temperature in July 2019, of the model (left), OISSTv2 dataset (middle), and difference (right).

August 2019



Apx Figure 67. Mean surface temperature in August 2019, of the model (left), OISSTv2 dataset (middle), and difference (right).

September 2019



Apx Figure 68. Mean surface temperature in September 2019, of the model (left), OISSTv2 dataset (middle), and difference (right).

October 2019



Apx Figure 69. Mean surface temperature in October 2019, of the model (left), OISSTv2 dataset (middle), and difference (right).

November 2019



Apx Figure 70. Mean surface temperature in November 2019, of the model (left), OISSTv2 dataset (middle), and difference (right).

December 2019



Apx Figure 71. Mean surface temperature in December 2019, of the model (left), OISSTv2 dataset (middle), and difference (right).

January 2020



Apx Figure 72. Mean surface temperature in January 2020, of the model (left), OISSTv2 dataset (middle), and difference (right).

A.4 Bottom Temperature of the Model and Doppio Dataset



February 2018

Apx Figure 73. Mean bottom temperature in February 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 74. Mean bottom temperature in March 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 75. Mean bottom temperature in April 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 76. Mean bottom temperature in May 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 77. Mean bottom temperature in June 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 78. Mean bottom temperature in July 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 79. Mean bottom temperature in August 2018, of the model (left), DOPPIO dataset (middle), and difference (right).





Apx Figure 80. Mean bottom temperature in September 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 81. Mean bottom temperature in October 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



November 2018

Apx Figure 82. Mean bottom temperature in November 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



December 2018

Apx Figure 83. Mean bottom temperature in December 2018, of the model (left), DOPPIO dataset (middle), and difference (right).


Apx Figure 84. Mean bottom temperature in January 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 85. Mean bottom temperature in February 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 86. Mean bottom temperature in March 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 87. Mean bottom temperature in April 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 88. Mean bottom temperature in May 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 89. Mean bottom temperature in June 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 90. Mean bottom temperature in July 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 91. Mean bottom temperature in August 2019, of the model (left), DOPPIO dataset (middle), and difference (right).





Apx Figure 92. Mean bottom temperature in September 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 93. Mean bottom temperature in October 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



November 2019

Apx Figure 94. Mean bottom temperature in November 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



December 2019

Apx Figure 95. Mean bottom temperature in December 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 96. Mean bottom temperature in January 2020, of the model (left), DOPPIO dataset (middle), and difference (right).

A.5 Surface Salinity of the Model and Doppio Dataset



February 2018

Apx Figure 97. Mean surface salinity in February 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 98. Mean surface salinity in March 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 99. Mean surface salinity in April 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 100. Mean surface salinity in May 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 101. Mean surface salinity in June 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 102. Mean surface salinity in July 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 103. Mean surface salinity in August 2018, of the model (left), DOPPIO dataset (middle), and difference (right).





Apx Figure 104. Mean surface salinity in September 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 105. Mean surface salinity in October 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



November 2018

Apx Figure 106. Mean surface salinity in November 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



December 2018

Apx Figure 107. Mean surface salinity in December 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 108. Mean surface salinity in January 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 109. Mean surface salinity in February 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 110. Mean surface salinity in March 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 111. Mean surface salinity in April 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 112. Mean surface salinity in May 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 113. Mean surface salinity in June 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 114. Mean surface salinity in July 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 115. Mean surface salinity in August 2019, of the model (left), DOPPIO dataset (middle), and difference (right).





Apx Figure 116. Mean surface salinity in September 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 117, Mean surface salinity in October 2019, of the model (left), DOPPIO dataset (middle), and difference (right).





Apx Figure 118. Mean surface salinity in November 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 119. Mean surface salinity in December 2019, of the model (left), DOPPIO dataset (middle), and difference (right).


Apx Figure 120. Mean surface salinity in January 2020, of the model (left), DOPPIO dataset (middle), and difference (right).

A.6 Bottom Salinity of the Model and Doppio Dataset



February 2018

Apx Figure 121. Mean bottom salinity in February 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 122. Mean bottom salinity in March 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 123. Mean bottom salinity in April 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 124. Mean bottom salinity in May 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 125. Mean bottom salinity in June 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 126. Mean bottom salinity in July 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 127. Mean bottom salinity in August 2018, of the model (left), DOPPIO dataset (middle), and difference (right).





Apx Figure 128. Mean bottom salinity in September 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 129. Mean bottom salinity in October 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



November 2018

Apx Figure 130. Mean bottom salinity in November 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 131. Mean bottom salinity in December 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 132. Mean bottom salinity in January 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 133. Mean bottom salinity in February 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 134. Mean bottom salinity in March 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 135. Mean bottom salinity in April 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 136. Mean bottom salinity in May 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 137. Mean bottom salinity in June 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 138. Mean bottom salinity in July 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 139. Mean bottom salinity in August 2019, of the model (left), DOPPIO dataset (middle), and difference (right).





Apx Figure 140. Mean bottom salinity in September 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 141. Mean bottom salinity in October 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 142. Mean bottom salinity in November 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 143. Mean bottom salinity in December 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 144. Mean bottom salinity in January 2020, of the model (left), DOPPIO dataset (middle), and difference (right).



A.7 Surface Current of the Model and Doppio Dataset

Apx Figure 145. Mean surface velocity in February 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 146. Mean surface velocity in March 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 147. Mean surface velocity in April 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 148. Mean surface velocity in May 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 149. Mean surface velocity in June 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 150. Mean surface velocity in July 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 151. Mean surface velocity in August 2018, of the model (left), DOPPIO dataset (middle), and difference (right).





Apx Figure 152. Mean surface velocity in September 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



October 2018

Apx Figure 153. Mean surface velocity in October 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



November 2018

Apx Figure 154. Mean surface velocity in November 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



December 2018

Apx Figure 155. Mean surface velocity in December 2018, of the model (left), DOPPIO dataset (middle), and difference (right).


Apx Figure 156. Mean surface velocity in January 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



February 2019

Apx Figure 157. Mean surface velocity in February 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 158. Mean surface velocity in March 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 159. Mean surface velocity in April 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 160. Mean surface velocity in May 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 161. Mean surface velocity in June 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 162. Mean surface velocity in July 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 163. Mean surface velocity in August 2019, of the model (left), DOPPIO dataset (middle), and difference (right).





Apx Figure 164. Mean surface velocity in September 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 165. Mean surface velocity in October 2019, of the model (left), DOPPIO dataset (middle), and difference (right).





Apx Figure 166. Mean surface velocity in November 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



December 2019

Apx Figure 167. Mean surface velocity in December 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 168. Mean surface velocity in January 2020, of the model (left), DOPPIO dataset (middle), and difference (right).



A.8 Surface Current of the Model and HF-Radar Dataset

Apx Figure 169. Mean surface velocity in February 2018, of the model (left), CODAR dataset (middle), and difference (right).



Apx Figure 170. Mean surface velocity in March 2018, of the model (left), CODAR dataset (middle), and difference (right).



Apx Figure 171. Mean surface velocity in April 2018, of the model (left), CODAR dataset (middle), and difference (right).



Apx Figure 172. Mean surface velocity in May 2018, of the model (left), CODAR dataset (middle), and difference (right).



Apx Figure 173. Mean surface velocity in June 2018, of the model (left), CODAR dataset (middle), and difference (right).



Apx Figure 174. Mean surface velocity in July 2018, of the model (left), CODAR dataset (middle), and difference (right).



August 2018

Apx Figure 175. Mean surface velocity in August 2018, of the model (left), CODAR dataset (middle), and difference (right).



September 2018

Apx Figure 176. Mean surface velocity in September 2018, of the model (left), CODAR dataset (middle), and difference (right).



Apx Figure 177. Mean surface velocity in October 2018, of the model (left), CODAR dataset (middle), and difference (right).



November 2018

Apx Figure 178. Mean surface velocity in November 2018, of the model (left), CODAR dataset (middle), and difference (right).



December 2018

Apx Figure 179. Mean surface velocity in December 2018, of the model (left), CODAR dataset (middle), and difference (right).



January 2019

Apx Figure 180. Mean surface velocity in January 2019, of the model (left), CODAR dataset (middle), and difference (right).



February 2019

Apx Figure 181. Mean surface velocity in February 2019, of the model (left), CODAR dataset (middle), and difference (right).



Apx Figure 182. Mean surface velocity in March 2019, of the model (left), CODAR dataset (middle), and difference (right).



Apx Figure 183. Mean surface velocity in April 2019, of the model (left), CODAR dataset (middle), and difference (right).



Apx Figure 184. Mean surface velocity in May 2019, of the model (left), CODAR dataset (middle), and difference (right).



Apx Figure 185. Mean surface velocity in June 2019, of the model (left), CODAR dataset (middle), and difference (right).



Apx Figure 186. Mean surface velocity in July 2019, of the model (left), CODAR dataset (middle), and difference (right).



August 2019

Apx Figure 187. Mean surface velocity in August 2019, of the model (left), CODAR dataset (middle), and difference (right).





Apx Figure 188. Mean surface velocity in September 2019, of the model (left), CODAR dataset (middle), and difference (right).



October 2019

Apx Figure 189. Mean surface velocity in October 2019, of the model (left), CODAR dataset (middle), and difference (right).



November 2019

Apx Figure 190. Mean surface velocity in November 2019, of the model (left), CODAR dataset (middle), and difference (right).



December 2019

Apx Figure 191. Mean surface velocity in December 2019, of the model (left), CODAR dataset (middle), and difference (right).


Apx Figure 192. Mean surface velocity in January 2020, of the model (left), CODAR dataset (middle), and difference (right).

A.9 Bottom Current of the Model and Doppio Dataset



February 2018

Apx Figure 193. Mean bottom velocity in February 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 194. Mean bottom velocity in March 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 195. Mean bottom velocity in April 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 196. Mean bottom velocity in May 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 197. Mean bottom velocity in June 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 198. Mean bottom velocity in July 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 199. Mean bottom velocity in August 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



September 2018

Apx Figure 200. Mean bottom velocity in September 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



October 2018

Apx Figure 201. Mean bottom velocity in October 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



November 2018

Apx Figure 202. Mean bottom velocity in November 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



December 2018

Apx Figure 203. Mean bottom velocity in December 2018, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 204. Mean bottom velocity in January 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



February 2019

Apx Figure 205. Mean bottom velocity in February 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 206. Mean bottom velocity in March 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 207. Mean bottom velocity in April 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 208. Mean bottom velocity in May 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 209. Mean bottom velocity in June 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 210. Mean bottom velocity in July 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 211. Mean bottom velocity in August 2019, of the model (left), DOPPIO dataset (middle), and difference (right).





Apx Figure 212. Mean bottom velocity in September 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



October 2019

Apx Figure 213. Mean bottom velocity in October 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



November 2019

Apx Figure 214. Mean bottom velocity in November 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



December 2019

Apx Figure 215. Mean bottom velocity in December 2019, of the model (left), DOPPIO dataset (middle), and difference (right).



Apx Figure 216. Mean bottom velocity in January 2020, of the model (left), DOPPIO dataset (middle), and difference (right).

B Oceanographic Processes – Time Series Analysis at Specific Locations

B.1 Water Temperature



Apx Figure 217. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 5.



Apx Figure 218. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 6.



Apx Figure 219. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 7.



Apx Figure 220. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 9.



Apx Figure 221. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 10.



Apx Figure 222. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 11.



Apx Figure 223. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 12.



Apx Figure 224. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 13.

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Apx Figure 225. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 14.



Apx Figure 226. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 15.



Apx Figure 227. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 16.


Apx Figure 228. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 17.



Apx Figure 229. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 19.



Apx Figure 230. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 20.



Apx Figure 231. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 21.



Apx Figure 232. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 22.



Apx Figure 233. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 23.



Apx Figure 234. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 24.



Apx Figure 235. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 25.



Apx Figure 236. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 26.



Apx Figure 237. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 27.



Apx Figure 238. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for surface (upper panels) and bottom temperature (lower panels) at station 28.

B.2 Wind and Current



Station - 5 Longitude: -75.33°E Latitude:35.75°N

Apx Figure 239. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 5.

Station - 6 Longitude: -75.42°E Latitude:36.0°N



Apx Figure 240. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 6.

Station - 7 Longitude: -75.59°E Latitude:36.26°N

2

1

0

-1

-2

-3

2

1

0

-1

-2

-3

Weekly Z-Score of Wind Speed: Scenario 2 - Baseline

Weekly Z-Score of Curent Speed (Surface): Scenario 2 - Baseline

an: -0.015

n: -0.002

td-0.07

td: 0.016







Weekly Mean of Curent Speed (d-averaged)

Mean - Baseline: 0.12 td - Baseline: 0.08

0.3

Speed (m/s) 70

0.1

0.0







Weekly Z-Score of Curent Speed (Surface): Scenario 3 - Baseline





Apx Figure 241. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 7.

Station - 9 Longitude: -74.84°E Latitude:36.61°N



Apx Figure 242. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 9.

Station - 10 Longitude: -75.72°E Latitude:36.92°N



Apx Figure 243. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 10.

Station - 11 Longitude: -75.32°E Latitude:37.75°N



Apx Figure 244. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 11.





Apx Figure 245. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 12.

Station - 13 Longitude: -73.77°E Latitude:39.77°N



Apx Figure 246. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 13.

Station - 14 Longitude: -73.7°E Latitude:40.37°N



Apx Figure 247. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 14.

Station - 15 Longitude: -73.16°E Latitude:40.25°N



Apx Figure 248. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 15.

Station - 16 Longitude: -72.64°E Latitude:39.62°N



Apx Figure 249. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 16.

Station - 17 Longitude: -73.33°E Latitude:40.3°N



Apx Figure 250. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 17.

Station - 19 Longitude: -72.75°E Latitude:40.0°N



Apx Figure 251. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 19.

Station - 20 Longitude: -74.0°E Latitude:39.5°N



Apx Figure 252. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 20.





Apx Figure 253. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 21.





Apx Figure 254. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 22.

Station - 23 Longitude: -75.33°E Latitude:36.92°N



Apx Figure 255. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 23.

Station - 24 Longitude: -74.02°E Latitude:37.3°N



Apx Figure 256. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 24.



Apx Figure 257. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 25.

Station - 26 Longitude: -72.04°E Latitude:40.53°N



Apx Figure 258. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 26.

Station - 27 Longitude: -71.6°E Latitude:39.74°N



ean - Baseline: 0.09 d - Baseline: 0.05

5.0 gb

0.1

0.0

0.5

0.4

(s/u) 0.3

Speed

0.1

0.0



Weekly Z-Score of Curent Speed (Surface): Scenario 2 - Baseline an: 0.0 td: 0.028







-3 Weekly Z-Score of Curent Speed (d-averaged): Scenario 3 - Baseline n: 0.009 td: 0.106

Weekly Z-Score of Wind Speed: Scenario 3 - Baseline

Weekly Z-Score of Curent Speed (Surface): Scenario 3 - Baseline

Weekly Z-Score of Curent Speed (Bottom): Scenario 3 - Baseline

an: -0.01

n: -0.009

an: -0.001

td: 0.029

Std: 0.041

td: 0.018

3

1

0

-1

-2

-3

2

1

0

-1

-2

-3

1

0

-1

-2

Apx Figure 259. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 - baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 27.

Station - 28 Longitude: -73.91°E Latitude:40.45°N



Apx Figure 260. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for wind speed and current speed (surface, bottom, and depth-averaged) at station 28.

B.3 Surface Heat Fluxes



Apx Figure 261. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 5.

Station - 6 Longitude: -75.42°E Latitude:36.0°N



Apx Figure 262. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 6.

Station - 7 Longitude: -75.59°E Latitude:36.26°N



Apx Figure 263. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 7.
Station - 9 Longitude: -74.84°E Latitude:36.61°N



Apx Figure 264. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 9.

Station - 10 Longitude: -75.72°E Latitude:36.92°N



Apx Figure 265. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 10.

Station - 11 Longitude: -75.32°E Latitude:37.75°N



Apx Figure 266. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 11.

Station - 12 Longitude: -74.69°E Latitude:38.46°N



Apx Figure 267. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 12.

Station - 13 Longitude: -73.77°E Latitude:39.77°N



Apx Figure 268. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 13.

Station - 14 Longitude: -73.7°E Latitude:40.37°N



Apx Figure 269. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 14.

Station - 15 Longitude: -73.16°E Latitude:40.25°N



Apx Figure 270. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 15.

Station - 16 Longitude: -72.64°E Latitude:39.62°N



Apx Figure 271. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 16.

Station - 17 Longitude: -73.33°E Latitude:40.3°N



Apx Figure 272. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 17.

Station - 19 Longitude: -72.75°E Latitude:40.0°N



Apx Figure 273. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 19.

Station - 20 Longitude: -74.0°E Latitude:39.5°N



Apx Figure 274. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 20.

Station - 21 Longitude: -75.0°E Latitude:36.25°N



Apx Figure 275. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 21.

Station - 22 Longitude: -72.75°E Latitude:38.5°N



Apx Figure 276. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 22.

Station - 23 Longitude: -75.33°E Latitude:36.92°N



Apx Figure 277. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 23.

Station - 24 Longitude: -74.02°E Latitude:37.3°N



Apx Figure 278. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 24.

Station - 25 Longitude: -73.36°E Latitude:39.52°N



Apx Figure 279. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 25.

Station - 26 Longitude: -72.04°E Latitude:40.53°N



Apx Figure 280. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 26.

Station - 27 Longitude: -71.6°E Latitude:39.74°N



Apx Figure 281. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 27.

Station - 28 Longitude: -73.91°E Latitude:40.45°N



Apx Figure 282. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for different heat fluxes at station 28.



B.4 Turbulent Vertical Eddy Viscosity

Apx Figure 283. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity (surface and bottom) at station 5.



Apx Figure 284. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity (surface and bottom) at station 6.



Apx Figure 285. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity (surface and bottom) at station 7.



Apx Figure 286. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity (surface and bottom) at station 9.



Apx Figure 287. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity (surface and bottom) at station 10.



Apx Figure 288. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity (surface and bottom) at station 11.



Apx Figure 289. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity (surface and bottom) at station 12.



Apx Figure 290. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity (surface and bottom) at station 13.



Apx Figure 291. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity (surface and bottom) at station 14.



Apx Figure 292. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity (surface and bottom) at station 15.



Apx Figure 293. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity (surface and bottom) at station 16.



Apx Figure 294. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity (surface and bottom) at station 17.



Apx Figure 295. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity (surface and bottom) at station 19.



Apx Figure 296. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity (surface and bottom) at station 20.



Apx Figure 297. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity (surface and bottom) at station 21.



Apx Figure 298. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity (surface and bottom) at station 22.



Apx Figure 299. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity (surface and bottom) at station 23.


Apx Figure 300. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity (surface and bottom) at station 24.



Apx Figure 301. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity (surface and bottom) at station 25.



Apx Figure 302. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity (surface and bottom) at station 26.



Apx Figure 303. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity (surface and bottom) at station 27.



Apx Figure 304. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for turbulent vertical eddy viscosity (surface and bottom) at station 28.

B.5 Turbulent Kinetic Energy



Apx Figure 305. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for TKE (surface and bottom) at station 5.



Apx Figure 306. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for TKE (surface and bottom) at station 6.



Apx Figure 307. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for TKE (surface and bottom) at station 7.



Apx Figure 308. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for TKE (surface and bottom) at station 9.



Apx Figure 309. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for TKE (surface and bottom) at station 10.



Apx Figure 310. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for TKE (surface and bottom) at station 11.



Apx Figure 311. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for TKE (surface and bottom) at station 12.



Apx Figure 312. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for TKE (surface and bottom) at station 13.



Apx Figure 313. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for TKE (surface and bottom) at station 14.



Apx Figure 314. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for TKE (surface and bottom) at station 15.



Apx Figure 315. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for TKE (surface and bottom) at station 16.



Apx Figure 316. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for TKE (surface and bottom) at station 17.



Apx Figure 317. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for TKE (surface and bottom) at station 19.



Apx Figure 318. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for TKE (surface and bottom) at station 20.



Apx Figure 319. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for TKE (surface and bottom) at station 21.



Apx Figure 320. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for TKE (surface and bottom) at station 22.



Apx Figure 321. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for TKE (surface and bottom) at station 23.



Apx Figure 322. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for TKE (surface and bottom) at station 24.



Apx Figure 323. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for TKE (surface and bottom) at station 25.



Apx Figure 324. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for TKE (surface and bottom) at station 26.



Apx Figure 325. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for TKE (surface and bottom) at station 27.



Apx Figure 326. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for TKE (surface and bottom) at station 28.

B.6 Stability – Richardson Number



Apx Figure 327. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for Richardson Number (surface and bottom) at station 5.



Apx Figure 328. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for Richardson Number (surface and bottom) at station 6.



Apx Figure 329. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for Richardson Number (surface and bottom) at station 7.



Apx Figure 330. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for Richardson Number (surface and bottom) at station 9.



Apx Figure 331. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for Richardson Number (surface and bottom) at station 10.



Apx Figure 332. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for Richardson Number (surface and bottom) at station 11.



Apx Figure 333. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for Richardson Number (surface and bottom) at station 12.



Apx Figure 334. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for Richardson Number (surface and bottom) at station 13.



Apx Figure 335. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for Richardson Number (surface and bottom) at station 14.


Apx Figure 336. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for Richardson Number (surface and bottom) at station 15.



Apx Figure 337. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for Richardson Number (surface and bottom) at station 16.



Apx Figure 338. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for Richardson Number (surface and bottom) at station 17.



Apx Figure 339. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for Richardson Number (surface and bottom) at station 19.



Apx Figure 340. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for Richardson Number (surface and bottom) at station 20.



Apx Figure 341. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for Richardson Number (surface and bottom) at station 21.



Apx Figure 342. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for Richardson Number (surface and bottom) at station 22.



Apx Figure 343. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for Richardson Number (surface and bottom) at station 23.



Apx Figure 344. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for Richardson Number (surface and bottom) at station 24.



Apx Figure 345. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for Richardson Number (surface and bottom) at station 25.



Station - 26

Apx Figure 346. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 - baseline (right panels) for Richardson Number (surface and bottom) at station 26.



Apx Figure 347. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for Richardson Number (surface and bottom) at station 27.



Apx Figure 348. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for Richardson Number (surface and bottom) at station 28.

B.7 Thermocline Depth and Strength



Apx Figure 349. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 5.



Apx Figure 350. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 6.



Apx Figure 351. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 7.



Apx Figure 352. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 9.



Apx Figure 353. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 10.



Apx Figure 354. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 11.



Apx Figure 355. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 12.



Apx Figure 356. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 13.



Apx Figure 357. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 14.



Apx Figure 358. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 15.



Apx Figure 359. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 16.



Apx Figure 360. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 17.



Apx Figure 361. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 19.



Apx Figure 362. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 20.



Apx Figure 363. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 21.



Apx Figure 364. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 22.



Apx Figure 365. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 23.



Apx Figure 366. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 24.



Apx Figure 367. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 25.



Apx Figure 368. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 26.



Apx Figure 369. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 27.



Apx Figure 370. Weekly mean (left panels), and weekly z-score for scenario 2 - baseline (middle panels) and scenario 3 – baseline (right panels) for thermocline depth and strength at station 28.

C Thermal Stratification Maps



February 2018

Apx Figure 371. Change in temperature delta between surface and bottom for baseline conditions (no windfarms) compared to Scenario 2 (partial wind farm build out) and Scenario 3 (full windfarm buildout) for February 2018.


March 2018

Apx Figure 372. Change in temperature delta between surface and bottom for baseline conditions (no windfarms) compared to Scenario 2 (partial wind farm build out) and Scenario 3 (full windfarm buildout) for March 2018.



April 2018

Apx Figure 373. Change in temperature delta between surface and bottom for baseline conditions (no windfarms) compared to Scenario 2 (partial wind farm build out) and Scenario 3 (full windfarm buildout) for April 2018.



May 2018

Apx Figure 374. Change in temperature delta between surface and bottom for baseline conditions (no windfarms) compared to Scenario 2 (partial wind farm build out) and Scenario 3 (full windfarm buildout) for May 2018.



June 2018

Apx Figure 375. Change in temperature delta between surface and bottom for baseline conditions (no windfarms) compared to Scenario 2 (partial wind farm build out) and Scenario 3 (full windfarm buildout) for June 2018.



July 2018

Apx Figure 376. Change in temperature delta between surface and bottom for baseline conditions (no windfarms) compared to Scenario 2 (partial wind farm build out) and Scenario 3 (full windfarm buildout) for July 2018.



August 2018

Apx Figure 377. Change in temperature delta between surface and bottom for baseline conditions (no windfarms) compared to Scenario 2 (partial wind farm build out) and Scenario 3 (full windfarm buildout) for August 2018.



September 2018

Apx Figure 378. Change in temperature delta between surface and bottom for baseline conditions (no windfarms) compared to Scenario 2 (partial wind farm build out) and Scenario 3 (full windfarm buildout) for September 2018.



October 2018

Apx Figure 379. Change in temperature delta between surface and bottom for baseline conditions (no windfarms) compared to Scenario 2 (partial wind farm build out) and Scenario 3 (full windfarm buildout) for October 2018.



November 2018

Apx Figure 380. Change in temperature delta between surface and bottom for baseline conditions (no windfarms) compared to Scenario 2 (partial wind farm build out) and Scenario 3 (full windfarm buildout) for November 2018.



December 2018

Apx Figure 381. Change in temperature delta between surface and bottom for baseline conditions (no windfarms) compared to Scenario 2 (partial wind farm build out) and Scenario 3 (full windfarm buildout) for December 2018.



January 2019

Apx Figure 382. Change in temperature delta between surface and bottom for baseline conditions (no windfarms) compared to Scenario 2 (partial wind farm build out) and Scenario 3 (full windfarm buildout) for January 2019.



February 2019

Apx Figure 383. Change in temperature delta between surface and bottom for baseline conditions (no windfarms) compared to Scenario 2 (partial wind farm build out) and Scenario 3 (full windfarm buildout) for February 2019.



March 2019

Apx Figure 384. Change in temperature delta between surface and bottom for baseline conditions (no windfarms) compared to Scenario 2 (partial wind farm build out) and Scenario 3 (full windfarm buildout) for March 2019.



April 2019

Apx Figure 385. Change in temperature delta between surface and bottom for baseline conditions (no windfarms) compared to Scenario 2 (partial wind farm build out) and Scenario 3 (full windfarm buildout) for April 2019.



May 2019

Apx Figure 386. Change in temperature delta between surface and bottom for baseline conditions (no windfarms) compared to Scenario 2 (partial wind farm build out) and Scenario 3 (full windfarm buildout) for May 2019.



June 2019

Apx Figure 387. Change in temperature delta between surface and bottom for baseline conditions (no windfarms) compared to Scenario 2 (partial wind farm build out) and Scenario 3 (full windfarm buildout) for June 2019.



July 2019

Apx Figure 388. Change in temperature delta between surface and bottom for baseline conditions (no windfarms) compared to Scenario 2 (partial wind farm build out) and Scenario 3 (full windfarm buildout) for July 2019.



August 2019

Apx Figure 389. Change in temperature delta between surface and bottom for baseline conditions (no windfarms) compared to Scenario 2 (partial wind farm build out) and Scenario 3 (full windfarm buildout) for August 2019.



September 2019

Apx Figure 390. Change in temperature delta between surface and bottom for baseline conditions (no windfarms) compared to Scenario 2 (partial wind farm build out) and Scenario 3 (full windfarm buildout) for September 2019.



October 2019

Apx Figure 391. Change in temperature delta between surface and bottom for baseline conditions (no windfarms) compared to Scenario 2 (partial wind farm build out) and Scenario 3 (full windfarm buildout) for October 2019.



November 2019

Apx Figure 392. Change in temperature delta between surface and bottom for baseline conditions (no windfarms) compared to Scenario 2 (partial wind farm build out) and Scenario 3 (full windfarm buildout) for November 2019.



December 2019

Apx Figure 393. Change in temperature delta between surface and bottom for baseline conditions (no windfarms) compared to Scenario 2 (partial wind farm build out) and Scenario 3 (full windfarm buildout) for December 2019.



January 2020

Apx Figure 394. Change in temperature delta between surface and bottom for baseline conditions (no windfarms) compared to Scenario 2 (partial wind farm build out) and Scenario 3 (full windfarm buildout) for January 2020.

D Cold Pool Temperature Transect



Temperature (°C) Contours, Transect 1: Baseline and Scenario 2

Apx Figure 395. Temperature contours under baseline (solid black line) and scenario 2 (dashed blue line) conditions, from March to October 2018, at transect 1.



Temperature (°C) Contours, Transect 1: Baseline and Scenario 2

Apx Figure 396. Temperature contours under baseline (solid black line) and scenario 2 (dashed blue line) conditions, from March to October 2019, at transect 1.



Temperature (°C) Contours, Transect 1: Baseline and Scenario 3

Apx Figure 397. Temperature contours under baseline (solid black line) and scenario 3 (dashed blue line) conditions, from March to October 2018, at transect 1.



Temperature (°C) Contours, Transect 1: Baseline and Scenario 3

Apx Figure 398. Temperature contours under baseline (solid black line) and scenario 3 (dashed blue line) conditions, from March to October 2019, at transect 1.



Temperature (°C) Contours, Transect 2: Baseline and Scenario 2

Apx Figure 399. Temperature contours baseline (solid black line) and scenario 2 (dashed blue line) conditions, from March to October 2019, at transect 2.



Temperature (°C) Contours, Transect 2: Baseline and Scenario 3

Apx Figure 400. Temperature contours under baseline (solid black line) and scenario 3 (dashed blue line) conditions, from March to October 2019, at transect 2.



Temperature (°C) Contours, Transect 3: Baseline and Scenario 2

Apx Figure 401. Temperature contours under baseline (solid black line) and scenario 2 (dashed blue line) conditions, from March to October 2018, at transect 3.



Temperature (°C) Contours, Transect 3: Baseline and Scenario 2

Apx Figure 402. Temperature contours under baseline (solid black line) and scenario 2 (dashed blue line) conditions, from March to October 2019, at transect 3.



Temperature (°C) Contours, Transect 3: Baseline and Scenario 3

Apx Figure 403. Temperature contours under baseline (solid black line) and scenario 3 (dashed blue line) conditions, from March to October 2018, at transect 3.



Temperature (°C) Contours, Transect 3: Baseline and Scenario 3

Apx Figure 404. Temperature contours under baseline (solid black line) and scenario 3 (dashed blue line) conditions, from March to October 2019, at transect 3.



Temperature (°C) Contours, Transect 4: Baseline and Scenario 2

Apx Figure 405. Temperature contours under baseline (solid black line) and scenario 2 (dashed blue line) conditions, from March to October 2018, at transect 4.



Temperature (°C) Contours, Transect 4: Baseline and Scenario 2

Apx Figure 406. Temperature contours under baseline (solid black line) and scenario 2 (dashed blue line) conditions, from March to October 2019, at transect 4.



Temperature (°C) Contours, Transect 4: Baseline and Scenario 3

Apx Figure 407. Temperature contours under baseline (solid black line) and scenario 3 (dashed blue line) conditions, from March to October 2018, at transect 4.


Temperature (°C) Contours, Transect 4: Baseline and Scenario 3

Apx Figure 408. Temperature contours under baseline (solid black line) and scenario 3 (dashed blue line) conditions, from March to October 2019, at transect 4.



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Bureau of Ocean Energy Management (BOEM)

BOEM's mission is to manage development of U.S. Outer Continental Shelf energy and mineral resources in an environmentally and economically responsible way.

BOEM Environmental Studies Program

The mission of the Environmental Studies Program is to provide the information needed to predict, assess, and manage impacts from offshore energy and marine mineral exploration, development, and production activities on human, marine, and coastal environments. The proposal, selection, research, review, collaboration, production, and dissemination of each of BOEM's Environmental Studies follows the DOI Code of Scientific and Scholarly Conduct, in support of a culture of scientific and professional integrity, as set out in the DOI Departmental Manual (305 DM 3).