Monitoring saltmarsh restoration in the Upper Bay of Fundy using multi-temporal Sentinel-2 imagery and Random Forests Classifier

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Supplementary material

Table S1. List of Sentinel-2 images used in the study.

Year	Date	Granule
2019	2019/06/16	S2A_MSIL2A_20190616T152631_N0212_R068_T20TLR_20190616T212543
	2019/07/18	S2B_MSIL2A_20190718T151659_N0213_R025_T20TLR_20190718T204825
	2019/08/30	S2B_MSIL2A_20190830T152629_N0213_R068_T20TLR_20190830T193430
	2019/09/19	S2B_MSIL2A_20190919T152629_N0213_R068_T20TLR_20190919T193224
	2019/10/21	S2A_MSIL2A_20191021T151651_N0213_R025_T20TLR_20191021T174434
2020	2020/05/11	S2A_MSIL2A_20200511T152631_N0214_R068_T20TLR_20200511T193805
	2020/06/17	S2A_MSIL1C_20200617T151701_N0209_R025_T20TLR_20200617T221812
	2020/07/22	S2B_MSIL2A_20200722T151659_N0214_R025_T20TLR_20200722T192959
	2020/08/19	S2A_MSIL2A_20200819T152631_N0214_R068_T20TLR_20200819T194117
	2020/09/25	S2A_MSIL2A_20200925T151701_N0214_R025_T20TLR_20200925T182821
2021	2021/05/03	S2A_MSIL2A_20210503T151651_N0300_R025_T20TLR_20210503T172328
	2021/06/07	S2B_MSIL2A_20210607T151649_N0300_R025_T20TLR_20210607T203829
	2021/07/25	S2A_MSIL2A_20210725T152631_N0301_R068_T20TLR_20210725T195348
	2021/08/14	S2A_MSIL2A_20210814T152631_N0301_R068_T20TLR_20210814T193115
	2021/09/13	S2A_MSIL2A_20210913T152631_N0301_R068_T20TLR_20210913T194659
2022	2022/05/03	S2B_MSIL2A_20220503T151649_N0400_R025_T20TLR_20220503T192639
	2022/06/15	S2B_MSIL2A_20220615T152629_N0400_R068_T20TLR_20220615T194958
	2022/07/10	S2A_MSIL2A_20220710T152641_N0400_R068_T20TLR_20220710T215339
	2022/08/21	S2B_MSIL2A_20220821T151649_N0400_R025_T20TLR_20220821T191227
	2022/09/10	S2B_MSIL2A_20220910T151659_N0400_R025_T20TLR_20220910T201512

Table S2. Environmental conditions at the time of Sentinel-2 image acquisition

Year	Date	Sun zenith angle (°)	Sun azimuth angle (°)	Air temperature (°C)	Relative Humidity (%)	Tide Height (m)	Total Precipitation in 10 previous days (mm)
2019	2019/06/16	31.88	125.38	15.0	77	12.2	35.6
	2019/07/18	34.52	126.13	17.4	77	9.0	8.7
	2019/08/30	43.98	138.16	23.7	65	12.7	125.9
	2019/09/19	50.01	144.73	3.2	100	4.8	3.9
	2019/10/21	60.52	152.72	5.7	98	2.4	61.8
2020	2020/05/11	36.72	132.35	7.4	55	7.4	32.8
	2020/06/17	31.89	125.19	18.7	51	6.5	9.5
	2020/07/22	35.28	126.99	19.6	70	10.0	5.1
	2020/08/19	41.24	134.72	17.6	83	12.2	4.3
	2020/09/25	53.08	144.15	7.2	92	2.3	51.8
2021	2021/05/03	31.02	197.13	10.8	45	1.4	39.8
	2021/06/07	33.49	123.25	21.3	72	10.1	24.2
	2021/07/25	35.76	127.56	17.6	80	9.8	78.3
	2021/08/14	39.95	133.03	22.8	90	1.1	27.6
	2021/09/13	69.40	252.55	12.9	95	1.4	47.5
2022	2022/05/03	31.09	197.09	12.9	54	7.5	42.5
	2022/06/15	24.14	204.58	19.9	53	11.5	59.4
	2022/07/10	24.86	201.2	21.3	42	7.8	42.3
	2022/08/21	34.37	193.06	29.2	52	5.8	30.0
	2022/09/10	41.70	193.59	21.8	55	12.5	1.3

Table S3. Ground photograph of each landcover class.

1. Bare mud 	2. Water 	3. Sparse *S. alterniflora* 
4. Dense *S. alterniflora* 	5. *S. patens* dominant 	6. *S. patens-J. gerardii* mix 
7. *S. patens-S. alterniflora* mix 	8. *J. gerardii-C. paleacea* mix 	9. *C. paleacea-S. pectinata* mix 

10. Dike 11. Terrestrial vegetation on dike 	12. Vegetated water 	13. *S. alterniflora* dominant 

Table S4. Confusion matrix (in pixels) and associated accuracies when applying the Random Forest classifier to all the input variables (spectral reflectance bands and vegetation indices) of the imagery acquired over the Aulac saltmarshes in 2019. UA = User's Accuracy (%), EC = Error of Commission (%), PA = Producer's Accuracy (%), EO = Error of Omission (%). Bold figures indicate well-classified pixels. See Table 4 for landcover class numbers and descriptions.

		Classified image															
	Class	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**Total**	**UA (%)**	**EC (%)**
Field data	**1**	**93**	0	1	0	0	0	0	0	0	0	0	0	0	94	98.9	1.1
	2	0	**21**	0	0	0	0	0	0	0	0	0	1	0	22	95.5	4.5
	3	0	0	**48**	0	0	0	0	0	0	0	0	0	0	48	100.0	0.0
	4	0	0	0	**47**	0	0	0	0	0	1	0	0	0	48	97.9	2.1
	5	0	0	0	0	**60**	0	0	0	0	0	0	0	0	60	100.0	0.0
	6	0	0	0	0	0	**20**	4	0	0	0	0	0	0	24	83.3	16.7
	7	0	0	0	0	3	3	**36**	1	0	0	0	0	1	44	81.8	18.2
	8	0	0	0	0	0	0	1	**34**	0	1	0	0	0	36	94.4	5.6
	9	0	0	0	0	0	0	0	2	**16**	2	0	0	0	20	80.0	20.0
	10	0	0	0	0	1	0	0	0	0	**55**	0	0	0	56	98.2	1.8
	11	0	0	0	0	0	0	0	0	0	0	**67**	0	0	67	100.0	0.0
	12	0	1	0	0	0	0	0	0	0	0	0	**44**	1	46	95.7	4.3
	13	1	0	0	0	1	0	1	0	0	0	0	0	**37**	40	92.5	7.5
	Total	94	22	49	47	65	23	42	37	16	59	67	45	39	605		
	PA (%)	98.9	95.5	98.0	100.0	92.3	87.0	85.7	91.9	100.0	93.2	100.0	97.8	94.9	Average accuracy = 93.71 %		
	EO (%)	1.1	4.5	2.0	0.0	7.7	13.0	14.3	8.1	0.0	6.8	0.0	2.2	5.1	Overall accuracy = 95.54 %		

Table S5. Confusion matrix (in pixels) and associated accuracies when applying the Random Forest classifier to all the input variables (spectral reflectance bands and vegetation indices) of the imagery acquired over the Aulac saltmarshes in 2020. UA = User's Accuracy (%), EC = Error of Commission (%), PA = Producer's Accuracy (%), EO = Error of Omission (%). Bold figures indicate well-classified pixels. See Table 4 for landcover class numbers and descriptions.

		Classified image															
	Class	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**Total**	**UA (%)**	**EC (%)**
Field data	**1**	**46**	0	1	0	0	0	1	0	0	0	0	0	0	48	95.8	4.2
	2	0	**19**	0	0	0	0	0	0	0	0	0	4	1	24	79.2	20.8
	3	1	0	**43**	0	0	0	0	0	0	0	0	0	0	44	97.7	2.3
	4	1	0	2	**48**	0	0	0	0	0	0	1	0	0	52	92.3	7.7
	5	0	0	0	0	**58**	0	2	0	0	0	0	0	0	60	96.7	3.3
	6	0	0	0	0	0	**18**	0	2	0	0	0	0	0	20	90.0	10.0
	7	0	0	0	0	8	0	**28**	0	0	0	0	0	0	36	77.8	22.2
	8	0	0	0	0	0	0	0	**30**	1	0	0	0	1	32	93.8	6.3
	9	0	0	0	0	0	0	0	1	**26**	1	0	0	0	28	92.9	7.1
	10	0	0	0	0	1	0	1	0	0	**42**	0	0	0	44	95.5	4.5
	11	0	0	0	1	0	0	0	0	0	2	**53**	0	0	56	94.6	5.4
	12	0	6	0	0	0	0	0	0	0	0	0	**42**	0	48	87.5	12.5
	13	0	1	0	0	0	0	0	0	0	0	0	0	**31**	32	96.9	3.1
	Total	48	26	46	49	67	18	32	33	27	45	54	46	33	524		
	PA (%)	95.8	73.1	93.5	98.0	86.6	100.0	87.5	90.9	96.3	93.3	98.1	91.3	93.9	Average accuracy = 91.58 %		
	EO (%)	4.2	26.9	6.5	2.0	13.4	0.0	12.5	9.1	3.7	6.7	1.9	8.7	6.1	Overall accuracy = 92.37 %		

Table S6. Confusion matrix (in pixels) and associated accuracies when applying the Random Forest classifier to all the input variables (spectral reflectance bands and vegetation indices) of the imagery acquired over the Aulac saltmarshes in 2021. UA = User's Accuracy (%), EC = Error of Commission (%), PA = Producer's Accuracy (%), EO = Error of Omission (%). Bold figures indicate well-classified pixels. See Table 4 for landcover class numbers and descriptions.

		Classified image															
	Class	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**Total**	**UA (%)**	**EC (%)**
Field data	**1**	**84**	0	0	0	0	0	0	0	0	0	0	0	0	84	100.0	0.0
	2	0	**28**	0	0	0	0	0	0	0	0	0	0	0	28	100.0	0.0
	3	0	0	**62**	2	0	0	0	0	0	0	0	0	0	64	96.9	3.1
	4	0	0	1	**51**	0	0	0	0	0	0	0	0	0	52	98.1	1.9
	5	0	0	0	0	**67**	0	1	0	0	0	0	0	0	68	98.5	1.5
	6	0	0	0	0	0	**26**	0	2	0	0	0	0	0	28	92.9	7.1
	7	0	0	0	0	0	0	**39**	0	0	0	0	0	1	40	97.5	2.5
	8	0	0	0	0	0	2	0	**29**	0	0	0	0	1	32	90.6	9.4
	9	0	0	0	0	0	0	0	2	**25**	1	0	0	0	28	89.3	10.7
	10	0	0	0	0	0	0	1	0	1	**38**	0	0	0	40	95.0	5.0
	11	1	0	0	0	0	0	0	0	0	0	**55**	0	0	56	98.2	1.8
	12	0	0	0	0	0	0	0	0	0	0	0	**36**	0	36	100.0	0.0
	13	0	0	0	1	0	0	4	0	0	0	0	0	**27**	32	84.4	15.6
	Total	85	28	63	54	67	28	45	33	26	39	55	36	29	588		
	PA (%)	98.8	100.0	98.4	94.4	100.0	92.9	86.7	87.9	96.2	97.4	100.0	100.0	93.1	Average accuracy = 95.49 %		
	EO (%)	1.2	0.0	1.6	5.6	0.0	7.1	13.3	12.1	3.8	2.6	0.0	0.0	6.9	Overall accuracy = 96.43 %		

Table S7. Confusion matrix (in pixels) and associated accuracies when applying the Random Forest classifier to all the input variables (spectral reflectance bands and vegetation indices) of the imagery acquired over the Aulac saltmarshes in 2022. UA = User's Accuracy (%), EC = Error of Commission (%), PA = Producer's Accuracy (%), EO = Error of Omission (%). Bold figures indicate well-classified pixels. See Table 4 for landcover class numbers and descriptions.

		Classified image															
	Class	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**Total**	**UA (%)**	**EC (%)**
Field data	**1**	**80**	0	1	0	0	0	1	0	0	0	0	0	0	82	97.6	2.4
	2	0	**21**	0	0	0	0	0	0	0	0	0	1	0	22	95.5	4.5
	3	0	0	**35**	1	0	0	0	0	0	0	0	0	0	36	97.2	2.8
	4	0	0	0	**51**	0	0	1	0	0	0	0	0	0	52	98.1	1.9
	5	0	0	0	0	**66**	1	1	0	0	0	0	0	0	68	97.1	2.9
	6	0	0	0	0	1	**19**	0	0	0	0	0	0	0	20	95.0	5.0
	7	0	0	0	1	1	1	**40**	0	0	0	0	1	0	44	90.9	9.1
	8	0	0	0	0	0	1	0	**33**	0	2	0	0	0	36	91.7	8.3
	9	0	0	0	0	0	0	0	2	**24**	2	0	0	0	28	85.7	14.3
	10	0	0	0	0	0	1	0	1	1	**41**	0	0	0	44	93.2	6.8
	11	1	0	0	0	0	0	0	0	0	0	**55**	0	0	56	98.2	1.8
	12	0	1	0	0	0	0	0	0	0	0	0	**46**	0	47	97.9	2.1
	13	0	0	0	0	0	0	2	0	0	0	0	0	**30**	32	93.8	6.3
	Total	81	22	36	53	68	23	45	36	25	45	55	48	30	567		
	PA (%)	98.8	95.5	97.2	96.2	97.1	82.6	88.9	91.7	96.0	91.1	100.0	95.8	100.0	Average accuracy = 94.74 %		
	EO (%)	1.2	4.5	2.8	3.8	2.9	17.4	11.1	8.3	4.0	8.9	0.0	4.2	0.0	Overall accuracy = 95.41 %		

Table S8. Confusion matrix (in pixels) and validation accuracies when applying the Random Forest classifier to all the input variables (spectral reflectance bands and vegetation indices) of the imagery acquired over the Aulac saltmarshes in 2019. UA = User's Accuracy (%), EC = Error of Commission (%), PA = Producer's Accuracy (%), EO = Error of Omission (%). Bold figures indicate well-classified pixels. See Table 5 for landcover class numbers and descriptions.

		Classified image															
	Class	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**Total**	**UA (%)**	**EC (%)**
Field data	**1**	37	0	1	0	0	0	0	0	0	1	1	0	0	40	92.5	7.5
	2	0	21	0	0	0	0	0	0	0	0	0	1	0	22	95.5	4.5
	3	0	0	18	0	0	0	0	0	0	0	0	0	0	18	100.0	0.0
	4	0	0	0	17	0	0	0	0	0	0	0	0	0	17	100.0	0.0
	5	0	0	0	0	34	2	0	0	1	1	1	0	0	39	87.2	12.8
	6	0	0	0	0	0	7	0	0	0	0	0	0	0	7	100.0	0.0
	7	0	0	0	0	0	1	13	0	0	0	0	1	2	17	76.5	23.5
	8	0	0	0	0	0	2	0	18	1	0	0	0	0	21	85.7	14.3
	9	0	0	0	0	0	0	0	0	8	1	0	0	0	9	88.9	11.1
	10	0	0	0	0	0	0	0	0	0	30	0	0	0	30	100.0	0.0
	11	0	0	0	0	0	0	0	0	0	0	22	0	0	22	100.0	0.0
	12	0	0	0	0	0	0	0	0	0	0	0	19	1	20	95.0	5.0
	13	0	0	0	2	1	0	0	0	0	0	0	0	36	39	92.3	7.7
	Total	37	21	19	19	35	12	13	18	10	33	24	21	39	301		
	PA (%)	100	100	94.7	89.5	97.1	58.3	100	100	80	90.9	91.7	90.5	92.3	Average accuracy = 93.35 %		
	EO (%)	0	0	5.3	10.5	2.9	41.7	0	0	20	9.1	8.3	9.5	7.7	Overall accuracy = 93.02 %		

Table S9. Confusion matrix (in pixels) and validation accuracies when applying the Random Forest classifier to all the input variables (spectral reflectance bands and vegetation indices) of the imagery acquired over the Aulac saltmarshes in 2020. UA = User's Accuracy (%), EC = Error of Commission (%), PA = Producer's Accuracy (%), EO = Error of Omission (%). Bold figures indicate well-classified pixels. See Table 5 for landcover class numbers and descriptions.

		Classified image															
	Class	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**Total**	**UA (%)**	**EC (%)**
Field data	**1**	**35**	0	1	1	0	0	1	0	0	0	0	0	0	38	92.1	7.9
	2	0	**17**	0	0	0	0	0	0	0	0	0	1	0	18	94.4	5.6
	3	0	0	**20**	0	0	0	0	0	0	0	0	0	0	20	100.0	0.0
	4	0	0	2	**14**	0	0	0	0	0	0	0	0	0	16	87.5	12.5
	5	0	0	0	0	**25**	0	1	0	0	0	0	0	0	26	96.2	3.8
	6	0	0	0	0	0	**21**	1	0	0	0	0	0	0	22	95.5	4.5
	7	0	0	0	0	1	0	**18**	0	0	0	0	0	0	19	94.7	5.3
	8	0	0	0	0	0	0	0	**9**	0	0	0	0	0	9	100.0	0.0
	9	0	0	0	0	0	0	0	0	**17**	5	0	0	0	22	77.3	22.7
	10	0	0	0	0	0	0	0	0	0	**17**	0	0	0	17	100.0	0.0
	11	0	0	2	0	0	0	0	0	0	0	**30**	0	0	32	93.8	6.3
	12	0	1	0	0	0	0	0	0	0	0	0	**23**	0	24	95.8	4.2
	13	0	1	0	0	3	1	1	0	0	0	0	0	**32**	38	84.2	15.8
	Total	35	19	25	15	29	22	22	9	17	22	30	24	32	301		
	PA (%)	100.0	89.5	80.0	93.3	86.2	95.5	81.8	100.0	100.0	77.3	100.0	95.8	100.0	Average accuracy = 93.19 %		
	EO (%)	0.0	10.5	20.0	6.7	13.8	4.5	18.2	0.0	0.0	22.7	0.0	4.2	0.0	Overall accuracy = 92.36 %		

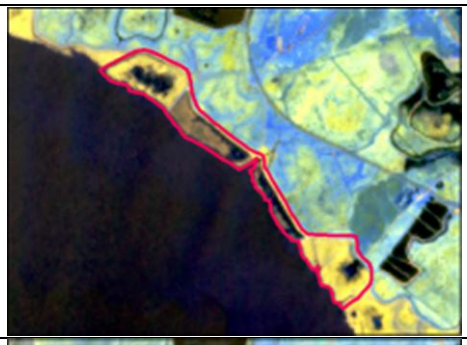
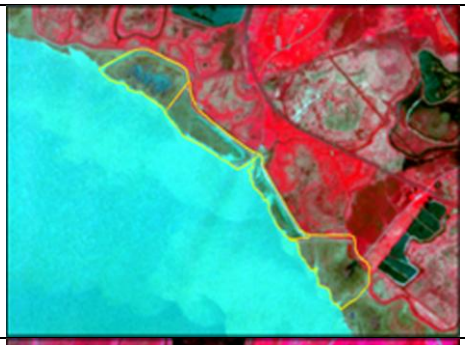
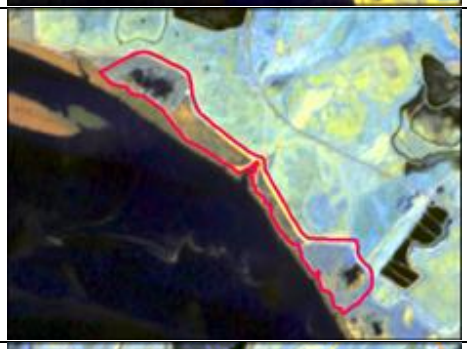
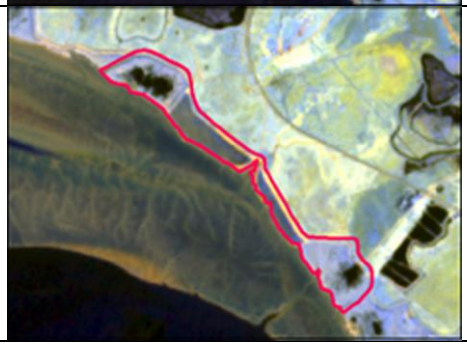
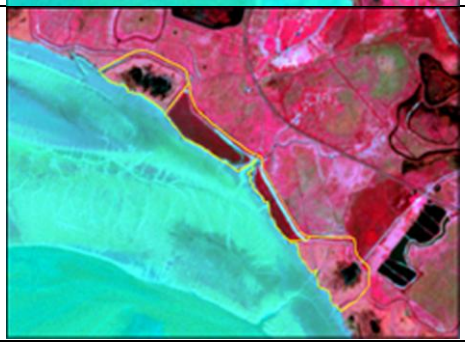
Table S10. Confusion matrix (in pixels) and validation accuracies when applying the Random Forest classifier to all the input variables (spectral reflectance bands and vegetation indices) of the imagery acquired over the Aulac saltmarshes in 2021. UA = User's Accuracy (%), EC = Error of Commission (%), PA = Producer's Accuracy (%), EO = Error of Omission (%). Bold figures indicate well-classified pixels. See Table 5 for landcover class numbers and descriptions.

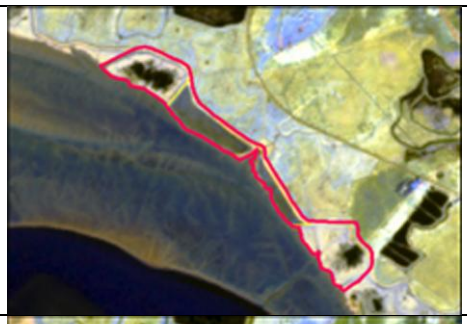
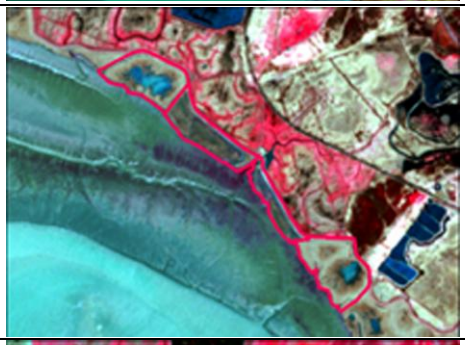
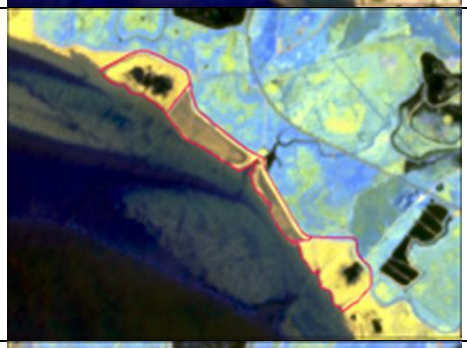
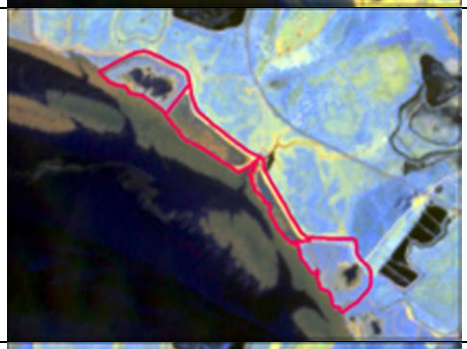
		Classified image															
	Class	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**Total**	**UA (%)**	**EC (%)**
Field data	**1**	**34**	0	2	0	0	0	0	0	0	0	0	0	0	36	94.4	5.6
	2	0	**14**	0	0	0	0	0	0	0	0	0	0	0	14	100.0	0.0
	3	0	1	**21**	0	0	0	0	0	0	0	0	0	0	22	95.5	4.5
	4	0	0	1	**30**	1	0	0	0	0	0	0	0	0	32	93.8	6.3
	5	0	0	0	0	**43**	0	3	0	0	0	0	1	0	47	91.5	8.5
	6	0	0	0	0	2	**15**	3	0	0	0	0	0	0	20	75.0	25.0
	7	0	0	0	0	2	0	**21**	0	0	0	0	0	1	24	87.5	12.5
	8	0	0	0	0	0	0	0	**12**	0	0	0	0	0	12	100.0	0.0
	9	0	0	0	0	0	0	0	2	**14**	0	0	0	0	16	87.5	12.5
	10	0	0	0	0	0	0	0	0	0	**15**	0	0	0	15	100.0	0.0
	11	0	0	0	0	0	0	0	0	0	0	**24**	0	0	24	100.0	0.0
	12	0	0	0	0	0	0	0	0	0	0	0	**19**	0	19	100.0	0.0
	13	0	0	0	0	0	1	3	0	0	0	0	0	**16**	20	80.0	20.0
	Total	34	15	24	30	48	16	30	14	14	15	24	20	17	301		
	PA (%)	100.0	93.3	87.5	100.0	89.6	93.8	70.0	85.7	100.0	100.0	100.0	95.0	94.1	Average accuracy = 92.70 %		
	EO (%)	0.0	6.7	12.5	0.0	10.4	6.3	30.0	14.3	0.0	0.0	0.0	5.0	5.9	Overall accuracy = 92.36 %		

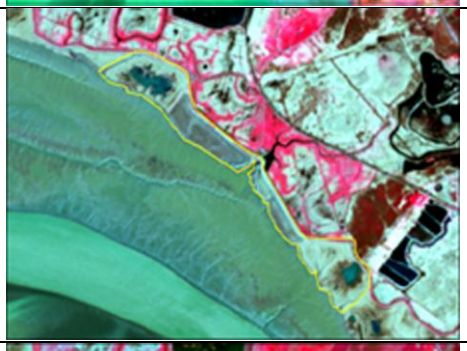
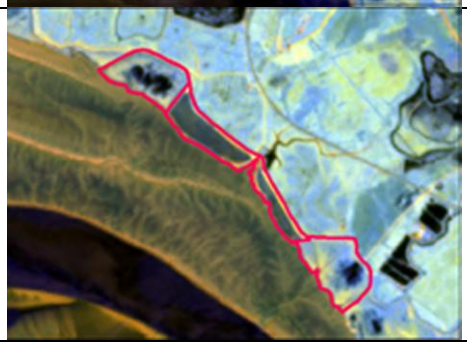
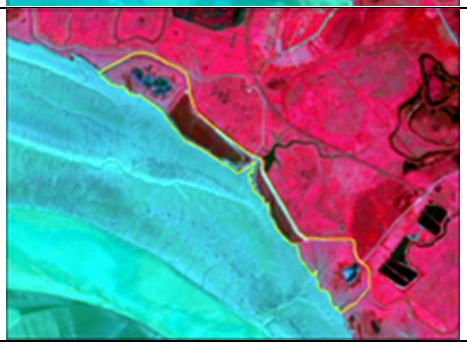
Table S11. Confusion matrix (in pixels) and validation accuracies when applying the Random Forest classifier to all the input variables (spectral reflectance bands and vegetation indices) of the imagery acquired over the Aulac saltmarshes in 2022. UA = User's Accuracy (%), EC = Error of Commission (%), PA = Producer's Accuracy (%), EO = Error of Omission (%). Bold figures indicate well-classified pixels. See Table 5 for landcover class numbers and descriptions.

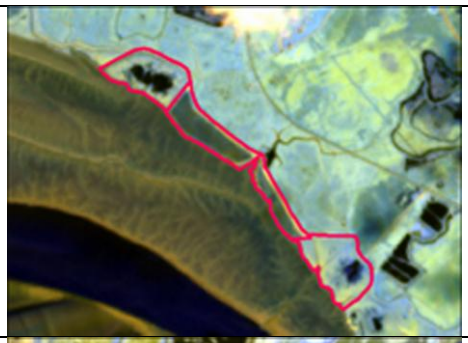
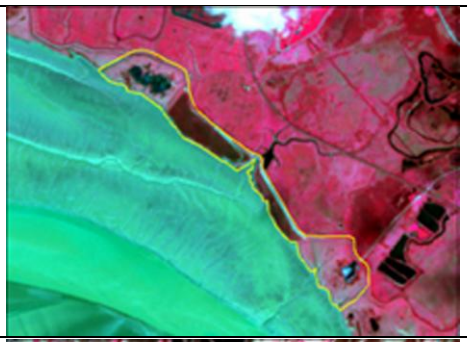
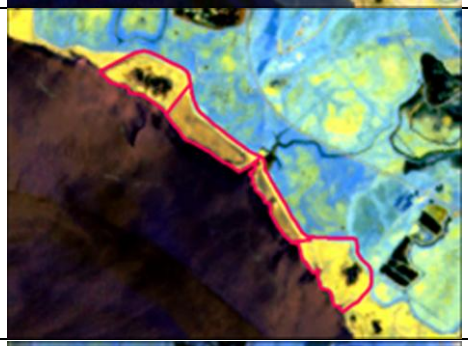
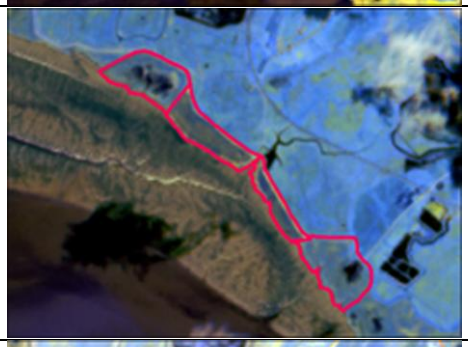
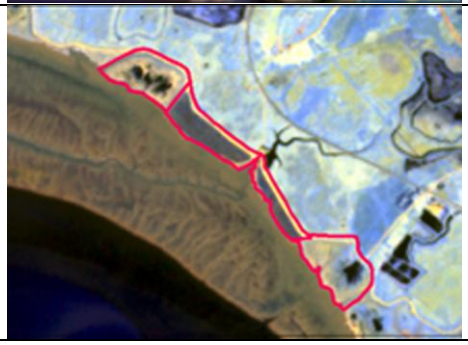
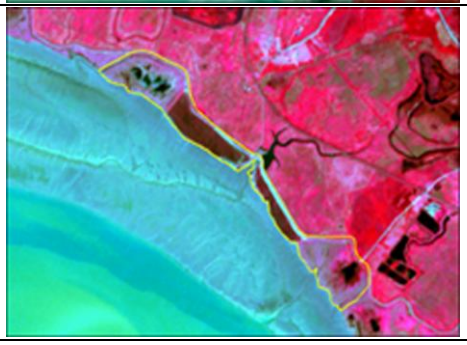
		Classified image															
	Class	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**Total**	**UA (%)**	**EC (%)**
Field data	**1**	**17**	0	0	0	0	0	0	0	0	0	0	0	0	17	100.0	0.0
	2	0	**7**	0	0	0	0	0	0	0	0	0	1	0	8	87.5	12.5
	3	0	0	**21**	0	0	0	0	0	0	0	0	0	1	22	95.5	4.5
	4	0	0	2	**15**	0	0	1	0	0	0	0	0	0	18	83.3	16.7
	5	0	0	0	0	**28**	0	2	0	0	1	0	0	0	31	90.3	9.7
	6	0	0	0	0	0	**16**	0	0	0	0	0	0	0	16	100.0	0.0
	7	0	0	3	3	0	0	**26**	0	0	0	0	2	0	34	76.5	23.5
	8	0	0	0	0	0	4	0	**11**	0	0	0	0	0	15	73.3	26.7
	9	0	0	0	0	0	0	0	1	**15**	0	0	0	0	16	93.8	6.3
	10	0	0	0	0	0	0	0	0	0	**10**	0	0	0	10	100.0	0.0
	11	1	0	0	0	0	0	0	0	0	0	**13**	0	0	14	92.9	7.1
	12	0	0	0	0	0	0	0	0	0	0	0	**12**	0	12	100.0	0.0
	13	0	0	0	0	0	1	0	0	0	0	0	0	**10**	11	90.9	9.1
	Total	18	7	26	18	28	21	29	12	15	11	13	15	11	224		
	PA (%)	94.4	100.0	80.8	83.3	100.0	76.2	89.7	91.7	100.0	90.9	100.0	80.0	90.9	Average accuracy = 91.70 %		
	EO (%)	5.6	0.0	19.2	16.7	0.0	23.8	10.3	8.3	0.0	9.1	0.0	20.0	9.1	Overall accuracy = 89.73 %		

Table S12. Sentinel-2 optical imagery of the Aulac saltmarsh sites in true color and false color composites.

Date	False color with SWIR2, SWIR1, NIR	False color with NIR, Green, Red
2019/06/16		
2019/07/18		
2019/08/30		
2019/09/19		

2019/10/21		
2020/05/11		
2020/06/17		
2020/07/22		
2020/08/19		

2020/09/25		
2021/05/03		
2021/06/07		
2021/07/25		
2021/08/14		

2021/09/13		
2022/05/03		
2022/06/15		
2022/07/10		
2022/08/21		

2022/09/10	