

Supplementary Tables and Figures

Table S1: Overall accuracy and *kappa* coefficient of RF, CART, and SVM classifiers in autumn, winter, spring, and summer Sentinel 2 and Landsat 8 images

Season	Classifier	Sentinel 2 MSI		Landsat 8 OLI	
		Overall Accuracy (%)	<i>Kappa</i> Coefficient	Overall Accuracy (%)	<i>Kappa</i> Coefficient
Autumn	RF	98.6	0.98	96.70	0.96
	SVM	97.8	0.97	93.96	0.92
	CART	98.0	0.97	95.54	0.94
Winter	RF	97.47	0.97	95.43	0.94
	SVM	97.19	0.96	93.91	0.92
	CART	96.93	0.96	94.00	0.92
Spring	RF	99.13	0.99	97.54	0.97
	SVM	98.54	0.98	95.90	0.95
	CART	97.67	0.97	96.31	0.95
Summer	RF	98.04	0.97	97.63	0.97
	SVM	96.92	0.96	94.69	0.93
	CART	97.48	0.97	95.02	0.93

Table S2: F1 score, user and producer accuracy of water hyacinth class in autumn, winter, spring, and summer seasons using RF, CART, and SVM algorithms in Sentinel 2 and Landsat 8 datasets

Season	Machine learning algorithms	User Accuracy (%)	Producer Accuracy (%)	F1-Score (%)
Sentinel 2 MSI				
Autumn	SVM	100	100	100.00
	CART	100	100	100.00
	RF	100	100	100.00
Winter	SVM	96.15	91.46	93.75
	CART	93.62	96.7	95.14
	RF	97.44	92.68	95.00
Spring	SVM	97.94	100	98.96
	CART	98.92	96.84	97.87
	RF	100	100	100.00
Summer	SVM	100	100	100.00
	CART	100	98.78	99.39
	RF	100	100	100.00
Landsat 8 OLI				
Autumn	SVM	97.89	100.00	98.94
	CART	98.88	98.88	98.88
	RF	97.89	100.00	98.94
Winter	SVM	89.41	88.37	88.88
	CART	93.02	97.56	95.24
	RF	93.26	96.51	94.86

Spring	SVM	91.38	92.98	92.17
	CART	90.00	94.74	92.31
	RF	93.22	96.49	94.83
Summer	SVM	88.24	97.40	92.59
	CART	94.44	94.44	94.44
	RF	96.04	97.00	96.52

Table S3. Performance of RF, CART and SVM methods

Season		Sentinel 2 MSI			
		Classifier	Overall Accuracy (%)	<i>Kappa</i> Coefficient	F1 Score (%)
October (Autumn)	2022	RF	99.7	1	100
		SVM	97.7	0.97	98.9
		CART	97.2	0.96	97.2
January (Winter)	2023	RF	99.5	0.99	100
		SVM	98.9	0.98	99
		CART	98.4	0.98	98.9

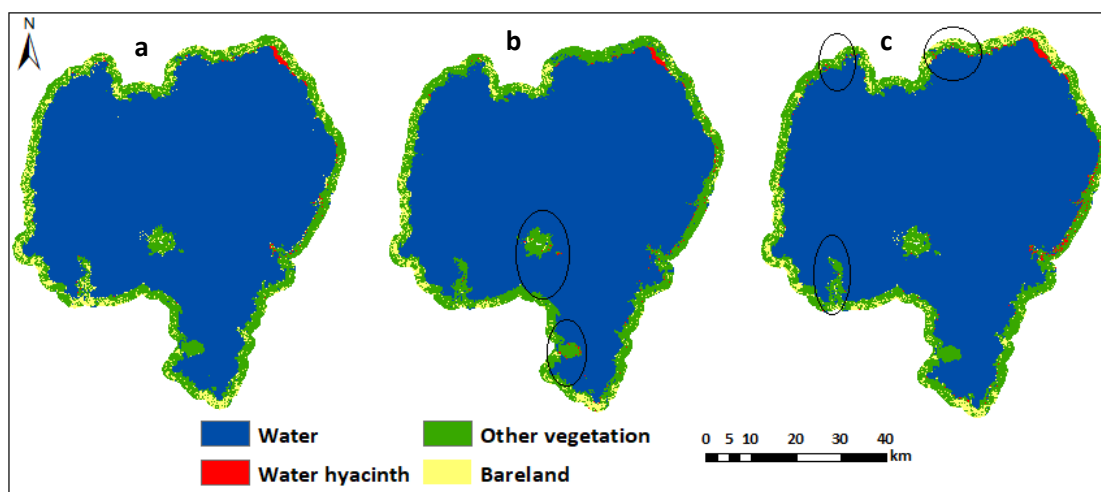


Figure S1: Machine learning classifier comparison in autumn (October 2022): Sentinel 2 (a) RF, (b) CART, (c) SVM. Black oval shape in the figure represents the area of misclassification.

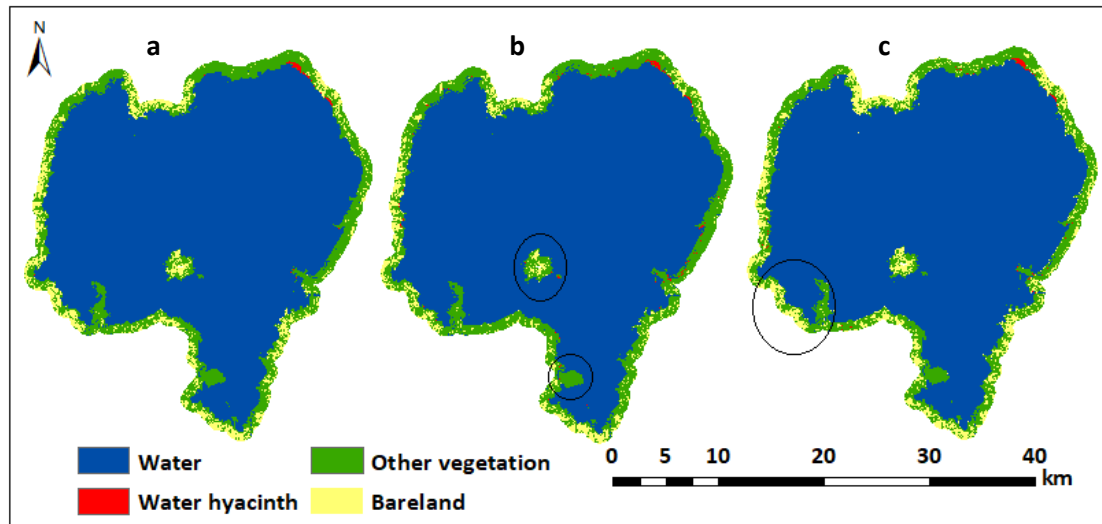


Figure S2: Machine learning classifier comparison in winter (January 2023): Sentinel 2 (a) RF, (b) CART, (c) SVM. Black oval shape in the figure represents the area of misclassification.