Supplementary Materials

Section S1: Summary of multispectral sensors and their characteristics

Table S1: Summary of multispectral sensors and their characteristics

Satellite Platform	Sensor(s)	Spatial Resolution	Revisit Time	Sensor Type	Launch Year(s)	Number of Bands	Reference
Landsat 8 & 9	OLI, TIRS	30 m (optical), 100 m (thermal)	16 days (8 days combined)	Multispectral, Thermal	2013 / 2021	11	[77]
Sentinel-2A/B	MSI	10 m, 20 m, 60 m	5 days (combined)	Multispectral	2015 / 2017	13	[74]
MODIS (Terra/Aqua)	MODIS	250 m, 500 m, 1 km	Daily	Multispectral	1999 / 2002	36	[130]
Sentinel-3A/B	OLCI, SLSTR	300 m (OLCI), 1 km (SLSTR)	1–2 days	Ocean colour, Thermal	2016 / 2018	21 (OLCI), 9 (SLSTR)	[131]
Planet Scope	Planet Scope Doves	3–5 m	Daily	Multispectral	2016+	4	[132]
WorldView-2/3	WV-2, WV-3	0.31 m (pan), 1.24 m (MS)	<1–3 days (tasked)	Multispectral, Panchromatic	2009 / 2014	8 (WV-2), 16 (WV-3)	[133]
Gaofen-1/6/4B	PMS	2 m (pan), 16 m (MS)	2–4 days	Multispectral	2013–2021	4 (MS)	[134]

Section S2: Summary of studies on application of remote sensing for water quality

Table S2: Summary of Studies on Chl-a with Methods and Sensors Applied

Authors	Studied Water Body (Country)	Method Used	Satellite Sensor Applied	Chl-a (mg/l)	R^2 Value
[104]	Lake (Indonesia)	Empirical	Landsat 8OLI	292.5	0.579
[51]	Lake Peipsi (Estonia)	Semi-empirical	Sentinel-2MSI	23.42	0.83
[106]	Lake Taihu (China)	Empirical	Sentinel-2MSI	0.001	0.86
[108]	Borabey Lake (Turkey)	Empirical	Rapid EYE	0.9	0.96
[22]	Lake (Kenya)	Empirical	Landsat 8OLI and Sent.2MSI	2.56	0.51
[105]	Lake (Czech)	Empirical	Sentinel-2MSI	94.3	0.9
[135]	Lake Nicaragua	Semi-empirical	Sent.2MSI/MODIS/Landsat 8OLI	2.14	0.85
[60]	Lake (China)	Empirical	Sentinel-2MSI	0.004	0.97
[66]	Lake (India)	Semi-empirical	Sentinel-2MSI	1.5	0.81
[63]	Lake (China)	Empirical	Sentinel-2MSI	0.26	0.93

Table S3: Summary of Studies on Turbidity with Methods and Sensors Applied

Authors	Studied Water Body (Country)	Method Used	Satellite Sensor Applied	Turbidity (NTU)	R^2 Value
[114]	Wu River (Taiwan)	Empirical	Sentinel-2MSI	150	0.82
[113]	River (India)	Empirical	Landsat7 TM	33.3	0.68
[59]	River Beas (Florida)	Empirical	Landsat8 OLI	3.66	0.63
[113]	Chilika Lake (India)	Empirical	Hyperion EO1	178	0.8
[136]	River (Philippines)	Semi-Analytical	Landsat8 OLI	61.8	0.98

[52]	Borabey Lake (Saudi)	Empirical	Sentinel-2MSI	32.1	0.94
[108]	(Turkey)	Empirical	Rapid Eye	1.31	0.92
[82]	Lake Tana (Ethiopia)	Empirical	MDOS, Planet scope	348	0.27
[80]	Qingshan Lake (China)	Analytical	UAV With RGB Camera	18.07	0.82
[115]	Biyu River (China)	Empirical	UAV With RGB Camera	121	0.75
[137]	Lake (China)	Empirical	Sentinel-2MSI	60	0.56

Table S4: Summary of Studies on TSS with Methods and Sensors Applied

Authors	Studied Water Body (Country)	Method Used	Satellite Sensor Applied	TSS (NTU)	R^2 Value
[114]	Wu river (Taiwan)	Empirical	Sentinel-2MSI	416	0.45
[104]	Lake (Indonesia)	Empirical	Landsat 8OLI	12.64	0.7
[53]	Lake (Brazil)	Empirical	Sentinel-2MSI	14.93	0.85
[105]	Lake (Czech)	Empirical	Sentinel-2MSI	7.44	0.8
[138]	Lake (USA)	Empirical	UAV with camera	2.44	0.99
[80]	Qingshan Lake (China)	Analytical	UAV with camera	30.2	0.62
[54]	Loktak Lake (India)	Empirical	Sentinel-2MSI	1.81	0.96
[32]	Chilika Lake (India)	Semi-empirical	Sentinel-2MSI	2511	
[119]	River	Semi-empirical	Hyperspectral	71.2	0.78