Supplemantary material

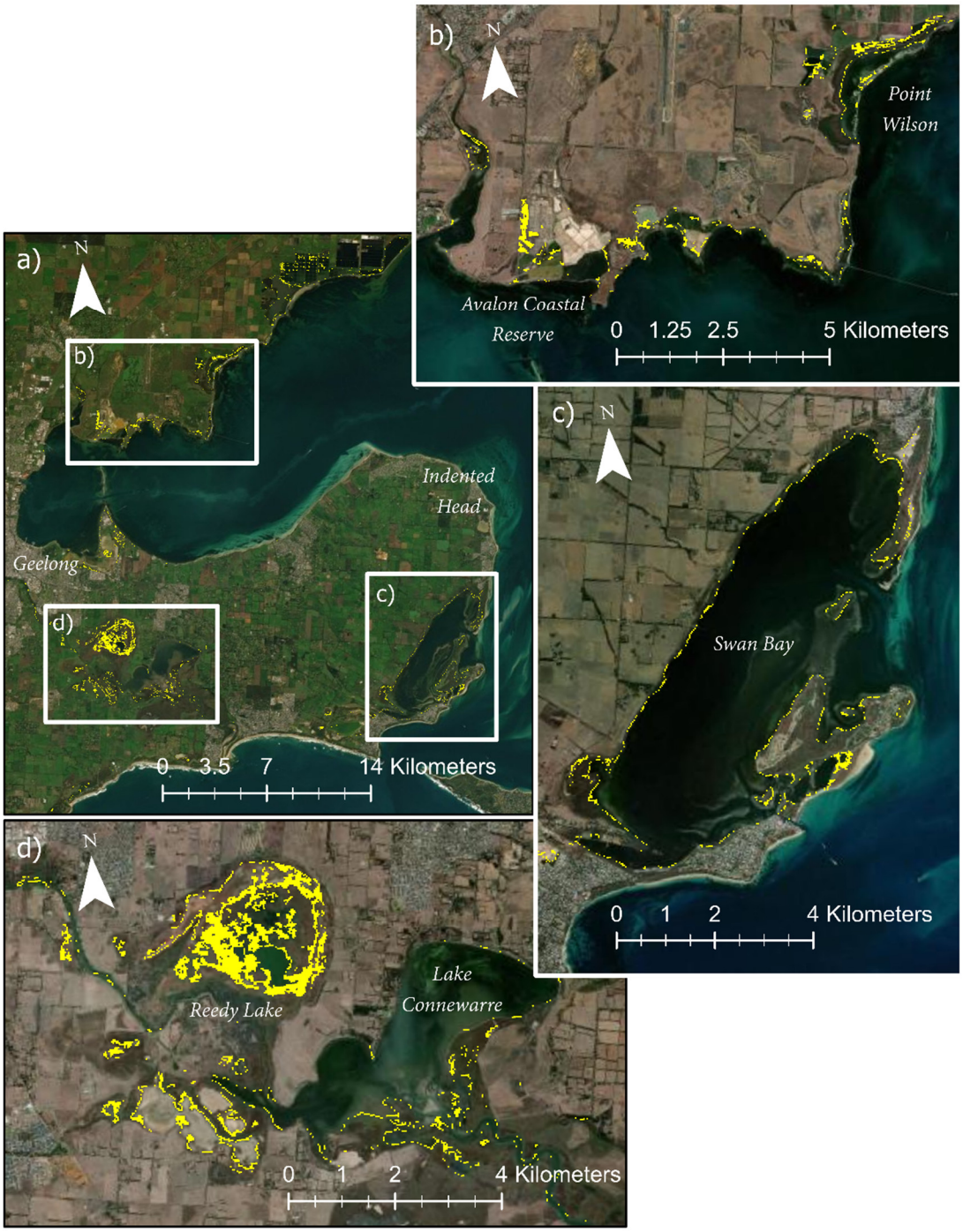


Figure S1. Saltmarsh expansion into water sources (in yellow) in the west coast of Port Phillip Bay (**a**; Central Bays, VIC). Zoomed in examples can be found in: **b**) restoration projects along the northwestern coast; **c**) saltmarsh expansion in Swan Bay; and **d**) False positive of saltmarsh expansion from rapid growth of the freshwater grass Phragmites reed at Reedy Lake. Maps created using ArcGIS Pro (v.2.1.1; esri.com).

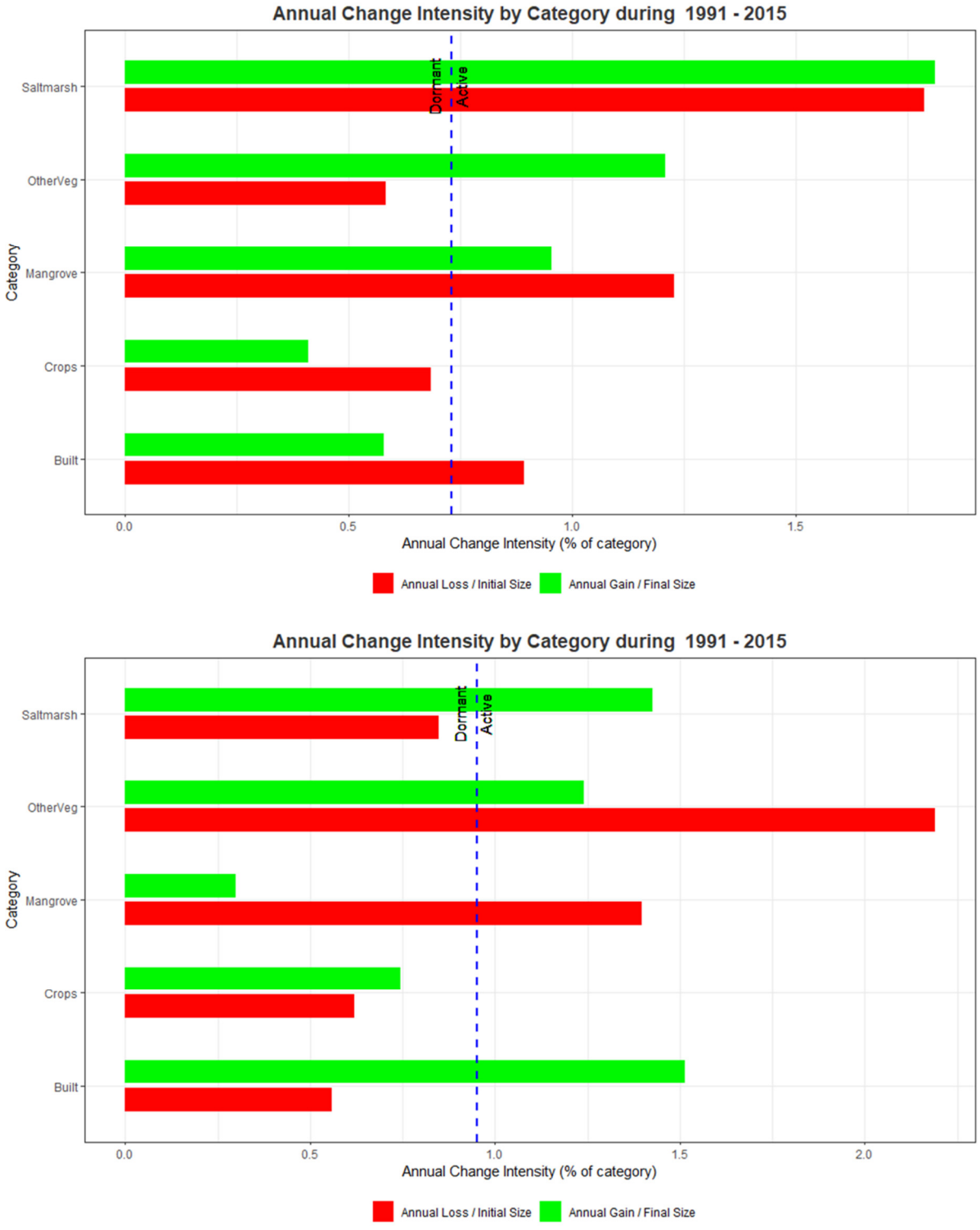


Figure S2. Annual change intensity for NSW (top) and VIC (bottom) in terms of gains (in green, calculated as the size of each gross annual gain divided by the size of the category at the final time point of the interval) and loses (in red; calculated as the size of each gross annual loss divided by the size of the category at the initial time point of the interval). The dashed vertical line indicates the land categories that are relatively dormant (left to the line) versus active (right to the line) in terms of loss and gain between 1991 and 2015, by comparing these intensities with uniform change in the study area. For more information see Pontius and Khallaghi [75].

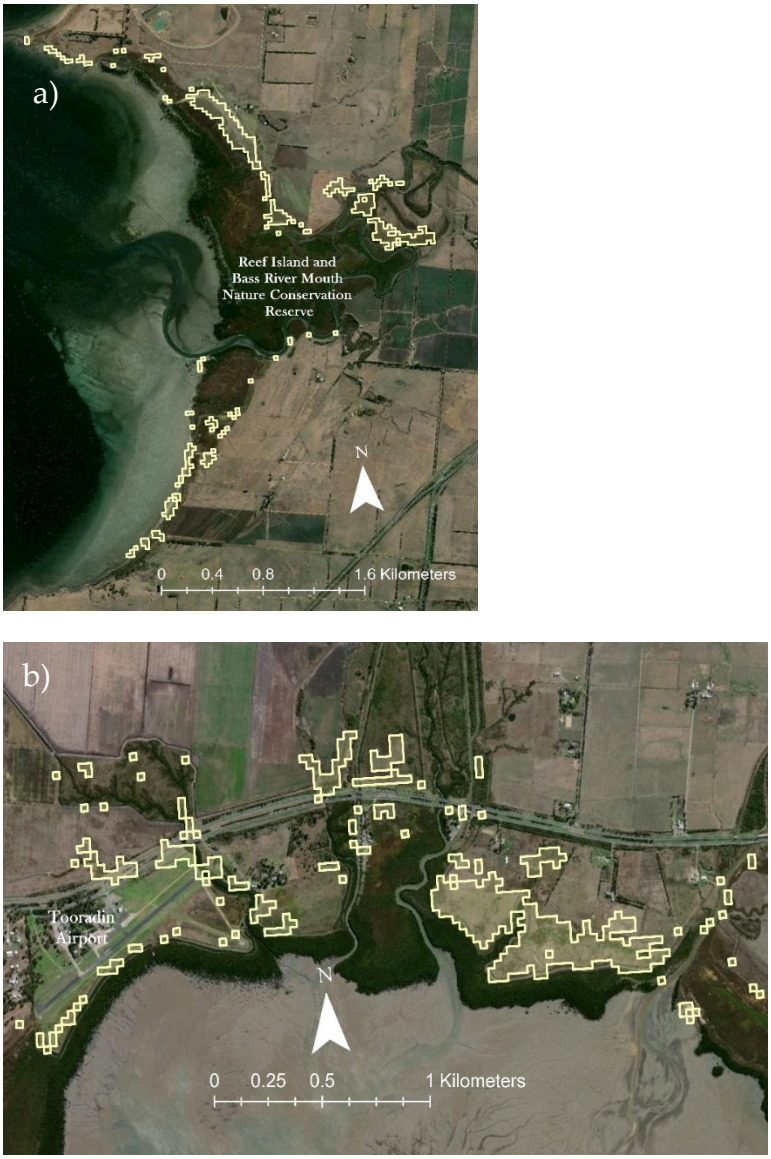


Figure S1. Examples of saltmarsh degradation to Croplands in the surroundings of Westernport (Central Bays, VIC): **a**) near Reef Island a Bass River Mouth Nature Conservation Reserve and **b**) near Tooradin Airport.



Figure S2. Examples of coastal wetlands loss (in yellow) to coastal development in the southeastern coast of Australia: **a**) Port of Newcastle (NSW); **b**) Port of Geelong (Port Phillip Bay, VIC); **c**) Aquaculture facilities for abalone production (Port Phillip Bay, VIC); and **d**) Residential development off the northern coast of Port Phillip Bay (VIC).

Table S1. Number of training and validation samples as used in our Random Forest models. We obtained these numbers by using 5% of all available samples for every class in every sub-region.

	Mangrove	Saltmarsh	Other Veg	Crops	Built	Total	Training	Validation
Northern Rivers, NSW	1299	733	11190	29393	2275	44890	31421	13469
Central Coast, NSW	2961	1781	12804	17831	11419	46796	32754	14042
Southern Rivers, NSW	709	466	3924	7400	1962	14461	10121	4340
Gippsland, VIC	1622	5909	3672	22180	426	33809	23664	10145
Central Bays, VIC	885	2632	1348	5548	2719	13132	9190	3942
Total	**7476**	**11521**	**32938**	**82352**	**18801**	**153088**	**107150**	**45938**

Table S2. Confusion matrix for the validation dataset of the 2006 model (upper number of each cell) and 2013 model (lower number). Where: PA: Producer Accuracy; UA: User Accuracy; CE: Commission Errors; OE: Omission errors.

	Built	Crops	Mangroves	Other Veg	Saltmarsh	**UA**	**CE**
Built	5295 5461	300 344	6 18	106 132	25 21	0.924 0.914	0.076 0.086
Crops	272 338	22636 24024	58 83	992 1271	621 766	0.921 0.907	0.079 0.093
Mangroves	6 1	8 20	1737 1750	107 122	112 100	0.882 0.878	0.118 0.122
Other Veg	62 68	1458 1621	319 266	8543 8470	275 239	0.802 0.794	0.198 0.206
Saltmarsh	2 3	270 211	109 118	113 118	2384 2266	0.828 0.834	0.172 0.166
PA	0.939 0.93	0.917 0.916	0.779 0.783	0.866 0.838	0.698 0.668		
OE	0.061 0.07	0.083 0.084	0.221 0.217	0.134 0.162	0.302 0.332		

Table S3. Overall Accuracy (OA), Kappa statistics and class specific balanced accuracies for Mangroves (MgA) and Saltmarsh (SmA) across all regions of interest for the 2013/Landsat 8 model after applying post-classification filters.

	NSW												VIC							
	Northern Rivers				Central Coast				Southern Rivers				Gippsland				Central Bays			
	OA	Kappa	MgA	SmA	OA	Kappa	MgA	SmA	OA	Kappa	MgA	SmA	OA	Kappa	MgA	SmA	OA	Kappa	MgA	SmA
Spectral	0.88	0.76	0.84	0.53	0.86	0.80	0.85	0.69	0.86	0.77	0.80	0.67	0.85	0.67	0.93	0.81	0.86	0.81	0.92	0.88
Spectral + DistW	0.88	0.77	0.85	0.57	0.86	0.81	0.86	0.71	0.87	0.78	0.81	0.67	0.85	0.68	0.92	0.82	0.87	0.82	0.91	0.89
Spectral + SRTM	0.89	0.78	0.87	0.57	0.87	0.82	0.87	0.74	0.87	0.78	0.82	0.74	0.86	0.70	0.93	0.82	0.88	0.83	0.92	0.92
Spectral + DistW + SRTM	0.89	0.79	0.88	0.62	0.88	0.83	0.88	0.77	0.88	0.79	0.85	0.74	0.87	0.71	0.93	0.83	0.89	0.84	0.92	0.92

Table S4. User (UA) and Producer Accuracy (PA) for the classes of interest (Mangroves and Saltmarsh) across all regions for the 2013/Landsat 8 model before and after applying the classification filters.

	NSW												VIC							
	Northern Rivers				Central Coast				Southern Rivers				Gippsland				Central Bays			
	Mangrove		Saltmarsh		Mangrove		Saltmarsh		Mangrove		Saltmarsh		Mangrove		Saltmarsh		Mangrove		Saltmarsh	
	UA	PA	UA	PA	UA	PA	UA	PA	UA	PA	UA	PA	UA	PA	UA	PA	UA	PA	UA	PA
Initial	0.81	0.76	0.69	0.32	0.78	0.81	0.65	0.56	0.73	0.74	0.67	0.55	0.86	0.86	0.74	0.74	0.88	0.83	0.82	0.86
After Spatial Filter	0.86	0.75	0.83	0.26	0.82	0.80	0.77	0.53	0.79	0.71	0.82	0.51	0.90	0.88	0.79	0.73	0.93	0.85	0.85	0.86
After Spatial & Temporal Filter	0.88	0.75	0.87	0.24	0.84	0.76	0.81	0.54	0.82	0.71	0.82	0.47	0.93	0.86	0.83	0.69	0.95	0.84	0.86	0.86