Supplementary Materials

MAPPING THE BENEFITS AND COSTS OF MANAGEMENT ACTIONS FOR COASTAL WETLANDS IN VICTORIA

Costa MDP, Wartman M, Macreadie PI, Ierodiaconou D, Morris R, Nicholson E, Pomeroy A, Young M, Carnell P. 2022. Mapping the benefits and costs of management actions for coastal wetlands in Victoria. Report submitted to the Department of Environment, Land, Water and Planning. Deakin University, Australia. 55pp.

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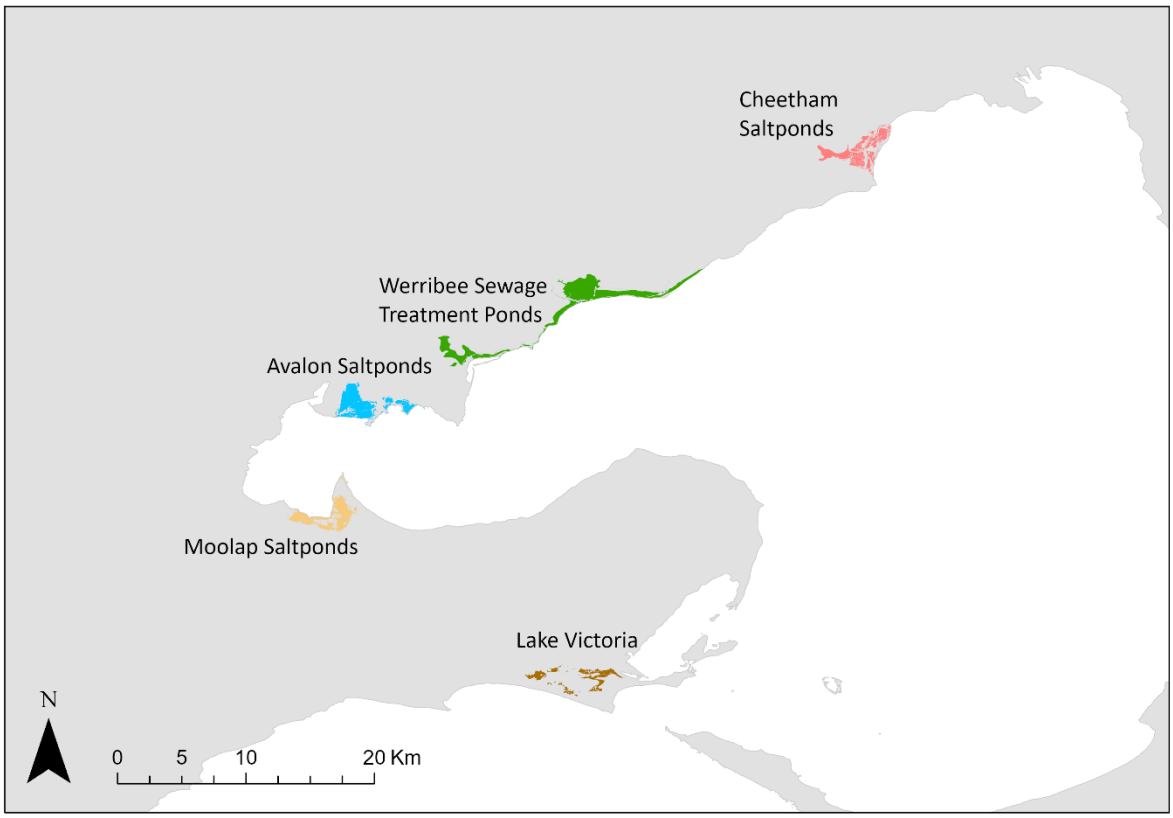


Figure S1: Detailed map showing the 5 sites included in this study in the 'Hydrological Intervention' scenario.

Legend (AUD per year)

0 - 527	23,203 - 37,177
527 - 2,161	37,177 - 76,201
2,161 - 5,697	76,201 - 177,274
5,697 - 11,994	177,274 - 498,161
11,994 - 23,203	498,161 - 871,957

Figure S2: Estimated carbon sequestration benefits for mangroves, saltmarshes and seagrasses distributed throughout Victoria's coastline. Results presented in this figure are from the scenario considering carbon sequestration modelled in the InVEST Coastal Blue Carbon Model and carbon price at AUD47.

Legend (AUD per year)

- 0 - 23,463
- 23,463 - 88,319
- 88,319 - 214,022
- 214,022 - 459,593
- 459,593 - 839,374
- 839,374 - 1.4 million
- 1.4 million - 2.7 million
- 2.7 million - 4.6 million
- 4.6 million - 11 million
- 11 million - 49.3 million

Figure S3: Estimated nitrogen sequestration benefits for mangroves, saltmarshes and seagrasses distributed throughout Victoria's coastline.

Legend (AUD per year)

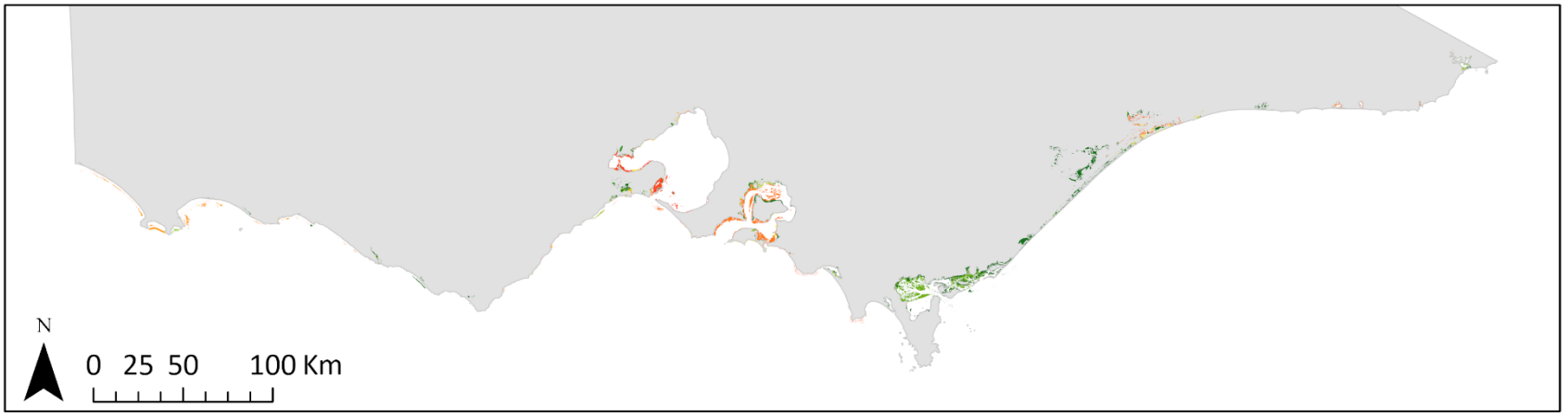
0 - 11.6	602.1 - 1,969
11.6 - 50.9	1,969 - 4,727
50.9 - 133.6	4,727 - 9,676
133.6 - 274.3	9,676 - 13,239
274.3 - 602.1	13,239 - 23,180

Figure S4: Estimated recreational fisheries benefits for mangroves, saltmarshes and seagrasses distributed throughout Victoria's coastline.

Legend (AUD per year)

0 - 131	7,058 - 13,665
131 - 598	13,665 - 32,818
598 - 1,600	32,818 - 78,691
1,600 - 3,556	78,691 - 220,618
3,566 - 7,058	220,618 - 386,273

Figure S5: Estimated commercial fisheries benefits for mangroves, saltmarshes and seagrasses distributed throughout Victoria's coastline.



Legend (AUD per year)

- 0 - 2.6 million
- 2.6 million - 8 million
- 8 million - 16.8 million
- 16.8 million - 29.6 million
- 29.6 million - 49.2 million
- 49.2 million - 74.8 million
- 74.8 million - 110 million
- 110 million - 181.6 million
- 181.6 million - 1.2 billion
- 1.2 billion - 4.3 billion

Figure S6: Estimated coastal hazards mitigation benefits for mangroves, saltmarshes and seagrasses distributed throughout Victoria's coastline.

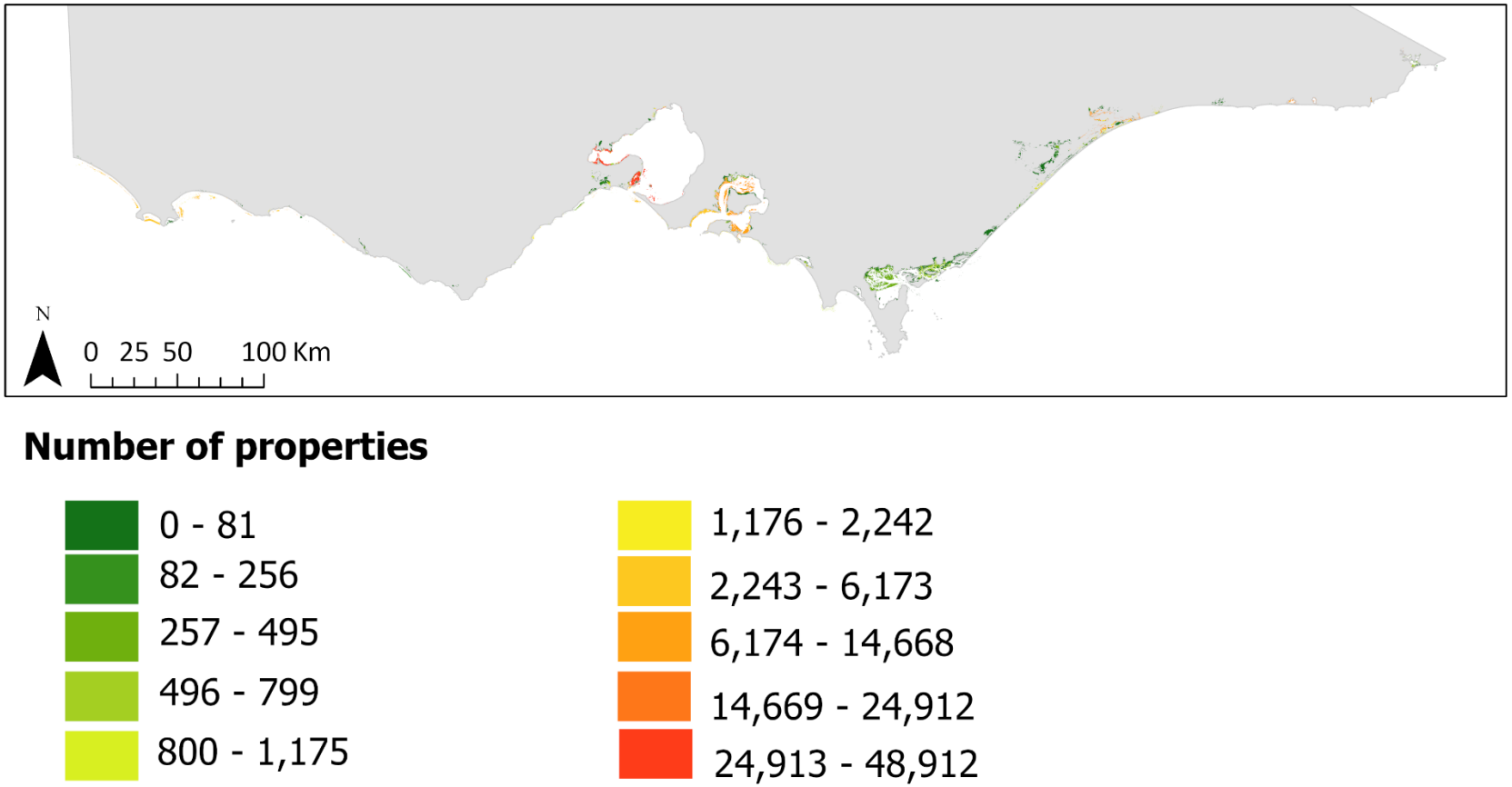


Figure S7: Number of properties within 1 km distance from coastal wetlands along Victoria's coastline.

Summary table for the results included in this report:

Scenarios	Results found on:
Existing ecosystems	
Current distribution of existing blue carbon ecosystems in Victoria	Figure 3 (Main report)
Condition of existing blue carbon ecosystems in Victoria	Figure 4 (Main report), Table S1 (Supplementary Material), Table S2 (Supplementary Material)
Estimated total benefits for existing blue carbon ecosystems considering carbon sequestration modelled in the InVEST Coastal Blue Carbon Model and carbon price at AUD16.14 per tonne	Table S4 (Supplementary Material)
Estimated total benefits for existing blue carbon ecosystems considering carbon sequestration modelled in the InVEST Coastal Blue Carbon Model and carbon price at AUD47 per tonne	Figure 5 (Main report), Table 4 (Main report)
Estimated total benefits for existing blue carbon ecosystems considering carbon sequestration modelled in the InVEST Coastal Blue Carbon Model and carbon price at AUD134.33 per tonne	Table S5 (Supplementary Material)
Estimated total benefits for existing blue carbon ecosystems considering carbon sequestration estimated through the area approach and carbon price at AUD16.14 per tonne	Table S6 (Supplementary Material)
Estimated total benefits for existing blue carbon ecosystems considering carbon sequestration estimated through the area approach and carbon price at AUD47 per tonne	Table S7 (Supplementary Material)
Estimated total benefits for existing blue carbon ecosystems considering carbon sequestration estimated through the area approach and carbon price at AUD134.33 per tonne	Table S8 (Supplementary Material)
Baseline trends (erosion)	
Estimated total benefits that could be lost due to erosion high risk areas considering carbon sequestration modelled in the InVEST Coastal Blue Carbon Model and carbon price at AUD16.14 per tonne	Table S9 (Supplementary Material)
Estimated total benefits that could be lost due to erosion high risk areas considering carbon sequestration modelled in the InVEST Coastal Blue Carbon Model and carbon price at AUD47 per tonne	Table 5 (Main report)
Estimated total benefits that could be lost due to erosion high risk areas considering carbon sequestration modelled in the InVEST Coastal Blue	Table S10 (Supplementary Material)

Carbon Model and carbon price at AUD134.33 per tonne	
Estimated total benefits that could be lost due to erosion high risk areas considering carbon sequestration estimated through the area approach and carbon price at AUD16.14 per tonne	Table S11 (Supplementary Material)
Estimated total benefits that could be lost due to erosion high risk areas considering carbon sequestration estimated through the area approach and carbon price at AUD47 per tonne	Table S12 (Supplementary Material)
Estimated total benefits that could be lost due to erosion high risk areas considering carbon sequestration estimated through the area approach and carbon price at AUD134.33 per tonne	Table S13 (Supplementary Material)
Estimated total benefits that could be lost due to erosion moderate risk areas considering carbon sequestration modelled in the InVEST Coastal Blue Carbon Model and carbon price at AUD16.14 per tonne	Table S14 (Supplementary Material)
Estimated total benefits that could be lost due to erosion moderate risk areas considering carbon sequestration modelled in the InVEST Coastal Blue Carbon Model and carbon price at AUD47 per tonne	Table 6 (Main report)
Estimated total benefits that could be lost due to erosion moderate risk areas considering carbon sequestration modelled in the InVEST Coastal Blue Carbon Model and carbon price at AUD134.33 per tonne	Table S15 (Supplementary Material)
Estimated total benefits that could be lost due to erosion moderate risk areas considering carbon sequestration estimated through the area approach and carbon price at AUD16.14 per tonne	Table S16 (Supplementary Material)
Estimated total benefits that could be lost due to erosion moderate risk areas considering carbon sequestration estimated through the area approach and carbon price at AUD47 per tonne	Table S17 (Supplementary Material)
Estimated total benefits that could be lost due to erosion moderate risk areas considering carbon sequestration estimated through the area approach and carbon price at AUD134.33 per tonne	Table S18 (Supplementary Material)
Management actions	
Estimated annual benefits from restoring mangroves and saltmarshes along Victoria's coastline considering carbon sequestration modelled in the InVEST Coastal Blue Carbon Model and carbon price at AUD47 per tonne	Figure 7 (Main report), Table 7 (Main report), Table 8 (Main report)

Estimated annual benefits from restoring mangroves and saltmarshes along Victoria's coastline	Table S19 (Supplementary material): includes all management scenarios with different combinations of carbon sequestration methods and prices

Table S1: Description and assumptions used to determine condition for saltmarshes and mangroves in Victoria, based on existing and historical distribution of these ecosystems (Boon et al. 2011), land use cover (Department of Environment Land Water and Planning 2018a) and presence of coastal levees (Department of Environment Land Water and Planning 2018b).

Condition	Description	Area (ha)
Collapsed	Mangroves and saltmarshes that were lost and currently under a different land use.	8,320
High disturbance	Mangroves and saltmarshes that are currently impacted by levees limiting tidal exchange and are within pasture/grazing land	3,508
Medium disturbance	Mangroves and saltmarshes that are currently impacted by levees limiting tidal exchange but are NOT within pasture/grazing land	3,488
Low disturbance	Mangroves and saltmarshes that are within pasture/grazing land but are NOT impacted by levees limiting tidal exchange	8,603
Natural	Mangroves and saltmarshes that are NOT impacted by levees limiting tidal exchange and are NOT within pasture/grazing land	16,546

Table S2: Description and assumptions used to determine seagrass condition in Port Phillip (Lynch 1966, Ball and Blake 2001, Jenkins et al. 2015) and Western Port (Wilkinson et al. 2016) Bays, based on existing distribution maps to classify the age of seagrass meadows and where they have collapsed. This analysis followed the approach suggested by Carnell et al. (2022).

Condition	Age		1966-1970	1980-1990	2000's	2010's	Area (ha)
Natural	>31	Present/Absent	Present	Present	Present		7,031
Low disturbance	11	Present/Absent	Absent	Present	Present		4,069
Medium disturbance	1	Present/Absent	Present/Absent	Absent	Present		6,215
High disturbance	0	Present/Absent	Present/Absent	Present	Absent		2,178
Collapsed	0	Present/Absent	Present/Absent	Absent	Absent		27,080

Table S3: Nitrogen sequestration rates used in this study.

Ecosystems	Port Phillip Bay	Western Port Bay	Open areas
Mangroves	0.165 ± 0.076	0.013 ± 0.002	0.089
Saltmarshes	0.051 ± 0.010	0.115 ± 0.039	0.083
Seagrasses	0.012 ± 0.002	0.008 ± 0.001	0.01

Table S4: Detailed results on ecosystem services and their associated values on a per year basis for mangroves, saltmarshes, and seagrasses along Victoria's coastline. Results presented in this table are from the scenario considering carbon sequestration modelled in the InVEST Coastal Blue Carbon Model and carbon price at AUD16.14 per tonne. Annual coastal protection value was estimated based on the total value of properties in 2021 within 1 km distance from coastal wetlands. *Values were rounded to the nearest integer.

Ecosystem services		Coastal wetlands		
		Mangroves	Saltmarshes	Seagrasses
		5,196 ha	26,949 ha	47,368 ha
Soil carbon sequestration	tonnes yr^{-1}	33,025	65,100	88,576
	AUD yr^{-1}	533,032	1.05 million	1.4 million
Nitrogen soil sequestration	tonnes yr^{-1}	325	2,253	461
	AUD yr^{-1}	17.5 million	185.4 million	78.7 million
Commercial fisheries	kg yr^{-1}	1.4 million	1.7 million	192.5 million
	AUD yr^{-1}	282,661	191,340	1.8 million
Recreational fisheries	kg yr^{-1}	2,702	3,503	13,737
	AUD yr^{-1}	21,804	28,273	110,912
Coastal hazard mitigation	Number of properties	154,631	1,644,684	292,544
	Total property value	93.6 billion	1 trillion	261 billion
	AUD yr^{-1}	8 billion	90.1 billion	22.4 billion
TOTAL	AUD yr^{-1}	8.02 billion	90.2 billion	22.5 billion
AVERAGE	AUD ha^{-1} yr^{-1}	1.5 million	3.3 million	474,482

Table S5: Detailed results on ecosystem services and their associated values on a per year basis for mangroves, saltmarshes, and seagrasses along Victoria's coastline. Results presented in this table are from the scenario considering carbon sequestration modelled in the InVEST Coastal Blue Carbon Model and carbon price at AUD134.33 per tonne (average social cost of carbon price between 2022 and 2065). Annual coastal protection value was estimated based on the total value of properties in 2021 within 1 km distance from coastal wetlands. *Values were rounded to the nearest integer.

Ecosystem services		Coastal wetlands		
		Mangroves	Saltmarshes	Seagrasses
		5,196 ha	26,949 ha	47,368 ha
Soil carbon sequestration	tonnes yr^{-1}	33,025	65,100	88,576
	AUD yr^{-1}	4.4 million	8.7 million	11.9 million
Nitrogen soil sequestration	tonnes yr^{-1}	325	2,253	461
	AUD yr^{-1}	17.5 million	185.4 million	78.7 million
Commercial fisheries	kg yr^{-1}	1.4 million	1.7 million	192.5 million
	AUD yr^{-1}	282,661	191,340	1.8 million
Recreational fisheries	kg yr^{-1}	2,702	3,503	13,737
	AUD yr^{-1}	21,804	28,273	110,912
Coastal hazard mitigation	Number of properties	154,631	1,644,684	292,544
	Total property value	93.6 billion	1 trillion	261 billion
	AUD yr^{-1}	8 billion	90.1 billion	22.4 billion
TOTAL	AUD yr^{-1}	8.02 billion	90.3 billion	22.5 billion
AVERAGE	AUD ha^{-1} yr^{-1}	1.5 million	3.3 million	474,846

Table S6: Detailed results on ecosystem services and their associated values on a per year basis for mangroves, saltmarshes, and seagrasses along Victoria's coastline. Results presented in this table are from the scenario considering carbon sequestration estimated through the area approach and carbon price at AUD16.14 per tonne. Annual coastal protection value was estimated based on the total value of properties in 2021 within 1 km distance from coastal wetlands. *Values were rounded to the nearest integer.

Ecosystem services		Coastal wetlands		
		Mangroves	Saltmarshes	Seagrasses
		5,196 ha	26,949 ha	47,368 ha
Soil carbon sequestration	tonnes yr^{-1}	33,150	65,217	88,579
	AUD yr^{-1}	535,046	1.05 million	1.4 million
Nitrogen soil sequestration	tonnes yr^{-1}	325	2,253	461
	AUD yr^{-1}	17.5 million	185.4 million	78.7 million
Commercial fisheries	kg yr^{-1}	1.4 million	1.7 million	192.5 million
	AUD yr^{-1}	282,661	191,340	1.8 million
Recreational fisheries	kg yr^{-1}	2,702	3,503	13,737
	AUD yr^{-1}	21,804	28,273	110,912
Coastal hazard mitigation	Number of properties	154,631	1,644,684	292,544
	Total property value	93.6 billion	1 trillion	261 billion
	AUD yr^{-1}	8 billion	90.1 billion	22.4 billion
TOTAL	AUD yr^{-1}	8.05 billion	90.3 billion	22.5 billion
AVERAGE	AUD ha^{-1} yr^{-1}	1.5 million	3.3 million	474,827

Table S7: Detailed results on ecosystem services and their associated values on a per year basis for mangroves, saltmarshes, and seagrasses along Victoria's coastline. Results presented in this table are from the scenario considering carbon sequestration estimated through the area approach and carbon price at AUD47 per tonne. Annual coastal protection value was estimated based on the total value of properties in 2021 within 1 km distance from coastal wetlands. *Values were rounded to the nearest integer.

Ecosystem services		Coastal wetlands		
		Mangroves	Saltmarshes	Seagrasses
		5,196 ha	26,949 ha	47,368 ha
Soil carbon sequestration	tonnes yr^{-1}	33,150	65,217	88,579
	AUD yr^{-1}	1.5 million	3 million	4.2 million
Nitrogen soil sequestration	tonnes yr^{-1}	325	2,253	461
	AUD yr^{-1}	17.5 million	185.4 million	78.7 million
Commercial fisheries	kg yr^{-1}	1.4 million	1.7 million	192.5 million
	AUD yr^{-1}	282,661	191,340	1.8 million
Recreational fisheries	kg yr^{-1}	2,702	3,503	13,737
	AUD yr^{-1}	21,804	28,273	110,912
Coastal hazard mitigation	Number of properties	154,631	1,644,684	292,544
	Total property value	93.6 billion	1 trillion	261 billion
	AUD yr^{-1}	8 billion	90.1 billion	22.4 billion
TOTAL	AUD yr^{-1}	8.05 billion	90.3 billion	22.5 billion
AVERAGE	AUD ha^{-1} yr^{-1}	1.5 million	3.3 million	474,884

Table S8: Detailed results on ecosystem services and their associated values on a per year basis for mangroves, saltmarshes, and seagrasses along Victoria's coastline. Results presented in this table are from the scenario considering carbon sequestration estimated through the area approach and carbon price at AUD134.33 per tonne (average social cost of carbon price between 2022 and 2065). Annual coastal protection value was estimated based on the total value of properties in 2021 within 1 km distance from coastal wetlands. *Values were rounded to the nearest integer.

Ecosystem services		Coastal wetlands		
		Mangroves	Saltmarshes	Seagrasses
		5,196 ha	26,949 ha	47,368 ha
Soil carbon sequestration	tonnes yr^{-1}	33,150	65,217	88,579
	AUD yr^{-1}	4.4 million	8.8 million	11.9 million
Nitrogen soil sequestration	tonnes yr^{-1}	325	2,253	461
	AUD yr^{-1}	17.5 million	185.4 million	78.7 million
Commercial fisheries	kg yr^{-1}	1.4 million	1.7 million	192.5 million
	AUD yr^{-1}	282,661	191,340	1.8 million
Recreational fisheries	kg yr^{-1}	2,702	3,503	13,737
	AUD yr^{-1}	21,804	28,273	110,912
Coastal hazard mitigation	Number of properties	154,631	1,644,684	292,544
	Total property value	93.6 billion	1 trillion	261 billion
	AUD yr^{-1}	8 billion	90.1 billion	22.4 billion
TOTAL	AUD yr^{-1}	8.05 billion	90.3 billion	22.5 billion
AVERAGE	AUD ha^{-1} yr^{-1}	1.5 million	3.3 million	475,048

Table S9: Detailed results on ecosystem services and their associated values on a per year basis for coastal wetlands that could be lost due to erosion high risk areas (represented by negative symbols below) along Victoria's coastline. Results presented in this figure are from the scenario considering carbon sequestration modelled in the InVEST Coastal Blue Carbon Model and carbon price at AUD16.14. Annual coastal protection value was estimated based on the total value of properties in 2021 within 1 km distance from coastal wetlands. *Values were rounded to the nearest integer.

Ecosystem services		Coastal wetlands		
		Mangroves	Saltmarshes	Seagrasses
		-295 ha	-4,342 ha	-11,854 ha
Soil carbon sequestration	tonnes yr^{-1}	-3,101	-71,150	-159,322
	AUD yr^{-1}	-50,050	-1.1 million	-2.6 million
Nitrogen soil sequestration	tonnes yr^{-1}	-16	-356	-114
	AUD yr^{-1}	-925,863	-30.2 million	-15.8 million
Commercial fisheries	kg yr^{-1}	-78,157	-277,915	-48.2 million
	AUD yr^{-1}	-16,044	-30,831	-462,318
Recreational fisheries	kg yr^{-1}	-153	-565	-3,438
	AUD yr^{-1}	-1,238	-4,556	-83,228
Coastal hazard mitigation	Number of properties	-11,131	-152,934	-46,838
	Total property value	-7.9 billion	-71.2 billion	-37.2 billion
	AUD yr^{-1}	-680 million	-6.1 billion	-3.2 billion
TOTAL	AUD yr^{-1}	-681 million	-6.1 billion	-3.2 billion
AVERAGE	AUD ha^{-1} yr^{-1}	-2.3 million	-1.4 million	-271,152

Table S10: Detailed results on ecosystem services and their associated values on a per year basis for coastal wetlands that could be lost due to erosion high risk areas (represented by negative symbols below) along Victoria's coastline. Results presented in this figure are from the scenario considering carbon sequestration modelled in the InVEST Coastal Blue Carbon Model and carbon price at AUD134.33 per tonne (average social cost of carbon price between 2022 and 2065). Annual coastal protection value was estimated based on the total value of properties in 2021 within 1 km distance from coastal wetlands. *Values were rounded to the nearest integer.

Ecosystem services		Coastal wetlands		
		Mangroves	Saltmarshes	Seagrasses
		-295 ha	-4,342 ha	-11,864 ha
Soil carbon sequestration	tonnes yr^{-1}	-3,101	-71,150	-159,322
	AUD yr^{-1}	-377,269	-8.6 million	-19.4 million
Nitrogen soil sequestration	tonnes yr^{-1}	-16	-356	-114
	AUD yr^{-1}	-925,863	-30.2 million	-15.8 million
Commercial fisheries	kg yr^{-1}	-78,157	-277,915	-48.2 million
	AUD yr^{-1}	-16,044	-30,831	-462,318
Recreational fisheries	kg yr^{-1}	-153	-564	-3,438
	AUD yr^{-1}	-1,238	-4,556	-83,228
Coastal hazard mitigation	Number of properties	-11,131	-152,934	-46,838
	Total property value AUD yr^{-1}	-7.9 billion -680 million	-71.2 billion -6.1 billion	-37.2 billion -3.2 billion
TOTAL	AUD yr^{-1}	-681 million	-6.1 billion	-3.2 billion
AVERAGE	AUD ha^{-1} yr^{-1}	-2.3 million	-1.4 million	-272,341

Table S11: Detailed results on ecosystem services and their associated values on a per year basis for coastal wetlands that could be lost due to erosion high risk areas (represented by negative symbols below) along Victoria's coastline. Results presented in this table are from the scenario considering carbon sequestration estimated through the area approach and carbon price at AUD16.14 per tonne. Annual coastal protection value was estimated based on the total value of properties in 2021 within 1 km distance from coastal wetlands. *Values were rounded to the nearest integer.

Ecosystem services		Coastal wetlands		
		Mangroves	Saltmarshes	Seagrasses
		-295 ha	-4,342 ha	-11,864 ha
Soil carbon sequestration	tonnes yr^{-1}	-1,882	-10,509	-22,168
	AUD yr^{-1}	-30,370	-169,610	-357,783
Nitrogen soil sequestration	tonnes yr^{-1}	-16	-356	-114
	AUD yr^{-1}	-925,863	-30.2 million	-15.8 million
Commercial fisheries	kg yr^{-1}	-78,157	-277,915	-48.2 million
	AUD yr^{-1}	-16,044	-30,831	-462,318
Recreational fisheries	kg yr^{-1}	-153	-564	-3,438
	AUD yr^{-1}	-1,238	-4,556	-83,228
Coastal hazard mitigation	Number of properties	-11,131	-152,934	-46,838
	Total property value	-7.9 billion	-71.2 billion	-37.2 billion
	AUD yr^{-1}	-680 million	-6.1 billion	-3.2 billion
TOTAL	AUD yr^{-1}	-680.6 million	-6.1 billion	-3.2 billion
AVERAGE	AUD ha^{-1} yr^{-1}	-2.3 million	-1.4 million	-270,738

Table S12: Detailed results on ecosystem services and their associated values on a per year basis for coastal wetlands that could be lost due to erosion high risk areas (represented by negative symbols below) along Victoria's coastline. Results presented in this table are from the scenario considering carbon sequestration estimated through the area approach and carbon price at AUD47 per tonne. Annual coastal protection value was estimated based on the total value of properties in 2021 within 1 km distance from coastal wetlands. *Values were rounded to the nearest integer.

Ecosystem services		Coastal wetlands		
		Mangroves	Saltmarshes	Seagrasses
		-295 ha	-4,342 ha	-11,864 ha
Soil carbon sequestration	tonnes yr^{-1}	-1,882	-10,509	-22,167
	AUD yr^{-1}	-88,439	-493,907	-1.04 million
Nitrogen soil sequestration	tonnes yr^{-1}	-16	-356	-114
	AUD yr^{-1}	-925,863	-30.2 million	-15.8 million
Commercial fisheries	kg yr^{-1}	-78,157	-277,915	-48.2 million
	AUD yr^{-1}	-16,044	-30,831	-462,318
Recreational fisheries	kg yr^{-1}	-153	-564	-3,438
	AUD yr^{-1}	-1,238	-4,556	-83,228
Coastal hazard mitigation	Number of properties	-11,131	-152,934	-46,838
	Total property value	-7.9 billion	-71.2 billion	-37.2 billion
	AUD yr^{-1}	-680 million	-6.1 billion	-3.2 billion
TOTAL	AUD yr^{-1}	-680.7 million	-6.1 billion	-3.2 billion
AVERAGE	AUD ha^{-1} yr^{-1}	-2.3 million	-1.4 million	-270,795

Table S13: Detailed results on ecosystem services and their associated values on a per year basis for coastal wetlands that could be lost due to erosion high risk areas (represented by negative symbols below) along Victoria's coastline. Results presented in this table are from the scenario considering carbon sequestration estimated through the area approach and carbon price at AUD134.33 per tonne (average social cost of carbon price between 2022 and 2065). Annual coastal protection value was estimated based on the total value of properties in 2021 within 1 km distance from coastal wetlands. *Values were rounded to the nearest integer.

Ecosystem services		Coastal wetlands		
		Mangroves	Saltmarshes	Seagrasses
		-295 ha	-4,342 ha	-11,864 ha
Soil carbon sequestration	tonnes yr^{-1}	-1,882	-10,509	-22,167
	AUD yr^{-1}	-228,295	-1.3 million	-2.7 million
Nitrogen soil sequestration	tonnes yr^{-1}	-16	-356	-114
	AUD yr^{-1}	-925,863	-30.2 million	-15.8 million
Commercial fisheries	kg yr^{-1}	-78,157	-277,915	-48.2 million
	AUD yr^{-1}	-16,044	-30,831	-462,318
Recreational fisheries	kg yr^{-1}	-153	-564	-3,438
	AUD yr^{-1}	-1,238	-4,556	-83,228
Coastal hazard mitigation	Number of properties	-11,131	-152,934	-46,838
	Total property value	-7.9 billion	-71.2 billion	-37.2 billion
	AUD yr^{-1}	-680 million	-6.1 billion	-3.2 billion
TOTAL	AUD yr^{-1}	-680.8 million	-6.1 billion	-3.2 billion
AVERAGE	AUD ha^{-1} yr^{-1}	-2.3 million	-1.4 million	-270,935

Table 14: Detailed results on ecosystem services and their associated values on a per year basis for coastal wetlands that could be lost due to erosion moderate risk areas (represented by negative symbols below) along Victoria's coastline. Results presented in this figure are from the scenario considering carbon sequestration modelled in the InVEST Coastal Blue Carbon Model and carbon price at AUD16.14 per tonne. Annual coastal protection value was estimated based on the total value of properties in 2021 within 1 km distance from coastal wetlands. *Values were rounded to the nearest integer.

Ecosystem services		Coastal wetlands		
		Mangroves	Saltmarshes	Seagrasses
		-5,050 ha	-18,262 ha	-37,054 ha
Soil carbon sequestration	tonnes yr^{-1}	-56,165	-264,234	-502,925
	AUD yr^{-1}	-906,511	-4.3 million	-8.1 million
Nitrogen soil sequestration	tonnes yr^{-1}	-320	-1,539	-360
	AUD yr^{-1}	-17.2 million	-137.2 million	-68.7 million
Commercial fisheries	kg yr^{-1}	-1.3 million	-1.2 million	-150.6 million
	AUD yr^{-1}	-274,703	-129,658	-1.4 million
Recreational fisheries	kg yr^{-1}	-2,626	-2,374	-10,746
	AUD yr^{-1}	-21,190	-54,223	-260,151
Coastal hazard mitigation	Number of properties	-20,250	-352,611	-92,921
	Total property value	-13.4 billion	-209.2 billion	-81.4 billion
	AUD yr^{-1}	-1.1 billion	-17.9 billion	-6.9 billion
TOTAL AVERAGE	AUD yr^{-1}	-1.2 billion	-18.1 billion	-7 billion
	AUD ha^{-1} yr^{-1}	-233,009	-990,931	-190,827

Table 15: Detailed results on ecosystem services and their associated values on a per year basis for coastal wetlands that could be lost due to erosion moderate risk areas (represented by negative symbols below) along Victoria's coastline. Results presented in this figure are from the scenario considering carbon sequestration modelled in the InVEST Coastal Blue Carbon Model and carbon price at AUD134.33 per tonne (average social cost of carbon price between 2022 and 2065). Annual coastal protection value was estimated based on the total value of properties in 2021 within 1 km distance from coastal wetlands. *Values were rounded to the nearest integer.

Ecosystem services		Coastal wetlands		
		Mangroves	Saltmarshes	Seagrasses
		-5,050 ha	-18,262 ha	-37,054 ha
Soil carbon sequestration	tonnes yr^{-1}	-56,165	-264,234	-502,925
	AUD yr^{-1}	-6.8 million	-32.1 million	-61 million
Nitrogen soil sequestration	tonnes yr^{-1}	-320	-1,539	-360
	AUD yr^{-1}	-17.2 million	-137.2 million	-68.7 million
Commercial fisheries	kg yr^{-1}	-1.3 million	-1.2 million	-150.6 million
	AUD yr^{-1}	-274,703	-129,658	-1.4 million
Recreational fisheries	kg yr^{-1}	-2,626	-2,374	-10,746
	AUD yr^{-1}	-21,190	-54,223	-260,151
Coastal hazard mitigation	Number of properties	-20,250	-352,611	-92,921
	Total property value	-13.4 billion	-209.2 billion	-81.4 billion
	AUD yr^{-1}	-1.1 billion	-17.9 billion	-6.9 billion
TOTAL AVERAGE	AUD yr^{-1}	-1.2 billion	-18.1 billion	-7.1 billion
	AUD ha^{-1} yr^{-1}	-234,181	-992,458 million	-192,259

Table 16: Detailed results on ecosystem services and their associated values on a per year basis for coastal wetlands that could be lost due to erosion moderate risk areas (represented by negative symbols below) along Victoria's coastline. Results presented in this figure are from the scenario considering carbon sequestration estimated through the area approach and carbon price at AUD16.14, per tonne. Annual coastal protection value was estimated based on the total value of properties in 2021 within 1 km distance from coastal wetlands. *Values were rounded to the nearest integer.

Ecosystem services		Coastal wetlands		
		Mangroves	Saltmarshes	Seagrasses
		-5,050 ha	-18,262 ha	-37,054 ha
Soil carbon sequestration	tonnes yr^{-1}	-32,217	-44,193	-69,290
	AUD yr^{-1}	-519,982	-713,282	-1.1 million
Nitrogen soil sequestration	tonnes yr^{-1}	-320	-1,539	-360
	AUD yr^{-1}	-17.2 million	-137.2 million	-68.7 million
Commercial fisheries	kg yr^{-1}	-1.3 million	-1.2 million	-150.6 million
	AUD yr^{-1}	-274,703	-129,658	-1.4 million
Recreational fisheries	kg yr^{-1}	-2,626	-2,374	-10,746
	AUD yr^{-1}	-21,190	-54,223	-260,151
Coastal hazard mitigation	Number of properties	-20,250	-352,611	-92,921
	Total property value	-13.4 billion	-209.2 billion	-81.4 billion
	AUD yr^{-1}	-1.1 billion	-17.9 billion	-6.9 billion
TOTAL AVERAGE	AUD yr^{-1}	-1.2 billion	-18.09 billion	-7.06 billion
	AUD ha^{-1} yr^{-1}	-232,934	-990,736	-190,638

Table 17: Detailed results on ecosystem services and their associated values on a per year basis for coastal wetlands that could be lost due to erosion moderate risk areas (represented by negative symbols below) along Victoria's coastline. Results presented in this figure are from the scenario considering carbon sequestration estimated through the area approach and carbon price at AUD47 per tonne. Annual coastal protection value was estimated based on the total value of properties in 2021 within 1 km distance from coastal wetlands. *Values were rounded to the nearest integer.

Ecosystem services		Coastal wetlands		
		Mangroves	Saltmarshes	Seagrasses
		-5,050 ha	-18,262 ha	-37,054 ha
Soil carbon sequestration	tonnes yr^{-1}	-32,217	-44,193	-69,290
	AUD yr^{-1}	-1.5 million	-2.1 million	-3.2 million
Nitrogen soil sequestration	tonnes yr^{-1}	-320	-1,539	-360
	AUD yr^{-1}	-17.2 million	-137.2 million	-68.7 million
Commercial fisheries	kg yr^{-1}	-1.3 million	-1.2 million	-150.6 million
	AUD yr^{-1}	-274,703	-129,658	-1.4 million
Recreational fisheries	kg yr^{-1}	-2,626	-2,374	-10,746
	AUD yr^{-1}	-21,190	-54,223	-260,151
Coastal hazard mitigation	Number of properties	-20,250	-352,611	-92,921
	Total property value	-13.4 billion	-209.2 billion	-81.4 billion
	AUD yr^{-1}	-1.1 billion	-17.9 billion	-6.9 billion
TOTAL AVERAGE	AUD yr^{-1}	-1.2 billion	-18.09 billion	-7.06 billion
	AUD ha^{-1} yr^{-1}	-233,130	-990,811	-190,696

Table 18: Detailed results on ecosystem services and their associated values on a per year basis for coastal wetlands that could be lost due to erosion moderate risk areas (represented by negative symbols below) along Victoria's coastline. Results presented in this figure are from the scenario considering carbon sequestration estimated through the area approach and carbon price at AUD134.33 per tonne (average social cost of carbon price between 2022 and 2065). Annual coastal protection value was estimated based on the total value of properties in 2021 within 1 km distance from coastal wetlands. *Values were rounded to the nearest integer.

Ecosystem services		Coastal wetlands		
		Mangroves	Saltmarshes	Seagrasses
		-5,050 ha	-18,262 ha	-37,054 ha
Soil carbon sequestration	tonnes yr^{-1}	-32,217	-44,193	-69,290
	AUD yr^{-1}	-3.9 million	-5.4 million	-8.4 million
Nitrogen soil sequestration	tonnes yr^{-1}	-320	-1,539	-360
	AUD yr^{-1}	-17.2 million	-137.2 million	-68.7 million
Commercial fisheries	kg yr^{-1}	-1.3 million	-1.2 million	-150.6 million
	AUD yr^{-1}	-274,703	-129,658	-1.4 million
Recreational fisheries	kg yr^{-1}	-2,626	-2,374	-10,746
	AUD yr^{-1}	-21,190	-54,223	-260,151
Coastal hazard mitigation	Number of properties	-20,250	-352,611	-92,921
	Total property value	-13.4 billion	-209.2 billion	-81.4 billion
	AUD yr^{-1}	-1.1 billion	-17.9 billion	-6.9 billion
TOTAL AVERAGE	AUD yr^{-1}	-1.2 billion	-18.09 billion	-7.07 billion
	AUD ha^{-1} yr^{-1}	-233,607	-990,991	-190,835

Table 19: Sensitivity analysis showing the net benefits using different discount rates for all scenarios included in this study. The scenarios for 'Levee Removal plus Managed Retreat' and 'Fencing, Levee Removal plus Managed Retreat' are represented without the Managed Retreat sites to highlight the areas amenable for restoration under current conditions. Values were rounded to their nearest integer.

Year	Scenario	Management action	1%	3%	5%	7%	11%
20	Carbon sequestration estimated through InVEST, carbon price at AUD16.14 per tonne	Fencing only	AUD38 billion	AUD37.2 billion	AUD36.4 billion	AUD35.7 billion	AUD34.1 billion
20	Carbon sequestration estimated through InVEST, carbon price at AUD119 per tonne (i.e., average social cost of carbon between 2022 and 2047)	Fencing only	AUD38 billion	AUD37.2 billion	AUD36.4 billion	AUD35.7 billion	AUD34.2 billion
20	Carbon sequestration estimated through the area approach, carbon price at AUD16.14 per tonne	Fencing only	AUD38 billion	AUD37.2 billion	AUD36.4 billion	AUD35.7 billion	AUD34.1 billion
20	Carbon sequestration estimated through the area approach, carbon price at AUD47 per tonne	Fencing only	AUD38 billion	AUD37.2 billion	AUD36.4 billion	AUD35.7 billion	AUD34.1 billion
20	Carbon sequestration estimated through the area approach, carbon price at AUD119 per tonne (i.e.,	Fencing only	AUD38 billion	AUD37.2 billion	AUD36.5 billion	AUD35.7 billion	AUD34.2 billion

	average social cost of carbon between 2022 and 2047)						
50	Carbon sequestration estimated through InVEST, carbon price at AUD16.14 per tonne	Fencing only	AUD151.4 billion	AUD148.3 billion	AUD145.2 billion	AUD142.2 billion	AUD136.1 billion
50	Carbon sequestration estimated through InVEST, carbon price at AUD119 per tonne (i.e., average social cost of carbon between 2022 and 2047)	Fencing only	AUD151.4 billion	AUD148.3 billion	AUD145.3 billion	AUD142.2 billion	AUD136.1 billion
50	Carbon sequestration estimated through the area approach, carbon price at AUD16.14 per tonne	Fencing only	AUD151.4 billion	AUD148.3 billion	AUD145.2 billion	AUD142.2 billion	AUD136.1 billion
50	Carbon sequestration estimated through the area approach, carbon price at AUD47 per tonne	Fencing only	AUD151.4 billion	AUD148.3 billion	AUD145.2 billion	AUD142.2 billion	AUD136.1 billion
50	Carbon sequestration estimated through the area approach, carbon price at AUD119 per tonne (i.e., average social cost of carbon between 2022 and 2047)	Fencing only	AUD151.4 billion	AUD148.3 billion	AUD145.3 billion	AUD142.2 billion	AUD136.1 billion
100	Carbon sequestration estimated through InVEST,	Fencing only	AUD340.3 billion	AUD333.5 billion	AUD326.6 billion	AUD319.7 billion	AUD306 billion

	carbon price at AUD16.14 per tonne						
100	Carbon sequestration estimated through InVEST, carbon price at AUD119 per tonne (i.e., average social cost of carbon between 2022 and 2047)	Fencing only	AUD340.4 billion	AUD333.5 billion	AUD326.7 billion	AUD319.8 billion	AUD306 billion
100	Carbon sequestration estimated through the area approach, carbon price at AUD16.14 per tonne	Fencing only	AUD340.3 billion	AUD333.5 billion	AUD326.6 billion	AUD319.7 billion	AUD306 billion
100	Carbon sequestration estimated through the area approach, carbon price at AUD47 per tonne	Fencing only	AUD340.4 billion	AUD333.5 billion	AUD326.6 billion	AUD319.7 billion	AUD306 billion
100	Carbon sequestration estimated through the area approach, carbon price at AUD119 per tonne (i.e., average social cost of carbon between 2022 and 2047)	Fencing only	AUD340.4 billion	AUD333.5 billion	AUD326.7 billion	AUD319.8 billion	AUD306 billion
20	Carbon sequestration estimated through InVEST, carbon price at AUD16.14 per tonne	Managed Retreat	AUD32.6 billion	AUD31.9 billion	AUD31.2 billion	AUD30.5 billion	AUD29.2 billion
20	Carbon sequestration estimated through InVEST, carbon price at AUD149 per	Managed Retreat	AUD34.8 billion	AUD34.1 billion	AUD33.3 billion	AUD32.6 billion	AUD31.1 billion

	tonne (i.e., average social cost of carbon between 2040 and 2065)						
20	Carbon sequestration estimated through the area approach, carbon price at AUD16.14 per tonne	Managed Retreat	AUD32.4 billion	AUD31.7 billion	AUD31.03 billion	AUD30.3 billion	AUD29 billion
20	Carbon sequestration estimated through the area approach, carbon price at AUD47 per tonne	Managed Retreat	AUD32.5 billion	AUD31.8 billion	AUD31.2 billion	AUD30.5 billion	AUD29.1 billion
20	Carbon sequestration estimated through the area approach, carbon price at AUD149 per tonne (i.e., average social cost of carbon between 2040 and 2065)	Managed Retreat	AUD33 billion	AUD32.3 billion	AUD31.6 billion	AUD30.9 billion	AUD29.5 billion
50	Carbon sequestration estimated through InVEST, carbon price at AUD16.14 per tonne	Managed Retreat	AUD110.3 billion	AUD108 billion	AUD105.8 billion	AUD103.5 billion	AUD99 billion
50	Carbon sequestration estimated through InVEST, carbon price at AUD149 per tonne (i.e., average social cost of carbon between 2040 and 2065)	Managed Retreat	AUD115.8 billion	AUD113.4 billion	AUD111 billion	AUD108.7 billion	AUD103.9 billion

50	Carbon sequestration estimated through the area approach, carbon price at AUD16.14 per tonne	Managed Retreat	AUD109.8 billion	AUD107.5 billion	AUD105.3 billion	AUD103.1 billion	AUD98.6 billion
50	Carbon sequestration estimated through the area approach, carbon price at AUD47 per tonne	Managed Retreat	AUD110.1 billion	AUD107.9 billion	AUD105.6 billion	AUD103.4 billion	AUD98.9 billion
50	Carbon sequestration estimated through the area approach, carbon price at AUD149 per tonne (i.e., average social cost of carbon between 2040 and 2065)	Managed Retreat	AUD111.2 billion	AUD109 billion	AUD106.7 billion	AUD104.4 billion	AUD99.9 billion
100	Carbon sequestration estimated through InVEST, carbon price at AUD16.14 per tonne,	Managed Retreat	AUD239.8 billion	AUD234.9 billion	AUD230 billion	AUD225.1 billion	AUD215.4 billion
100	Carbon sequestration estimated through InVEST, carbon price at AUD149 per tonne (i.e., average social cost of carbon between 2040 and 2065)	Managed Retreat	AUD250.8 billion	AUD245.7 billion	AUD240.6 billion	AUD235.5 billion	AUD225.3 billion
100	Carbon sequestration estimated through the area approach, carbon price at AUD16.14 per tonne	Managed Retreat	AUD238.8 billion	AUD233.9 billion	AUD229.1 billion	AUD224.2 billion	AUD214.5 billion

100	Carbon sequestration estimated through the area approach, carbon price at AUD47 per tonne	Managed Retreat	AUD239.5 billion	AUD234.6 billion	AUD229.7 billion	AUD224.9 billion	AUD215.1 billion
100	Carbon sequestration estimated through the area approach, carbon price at AUD149 per tonne (i.e., average social cost of carbon between 2040 and 2065)	Managed Retreat	AUD241.7 billion	AUD236.8 billion	AUD31.9 billion	AUD227 billion	AUD217.1 billion
20	Carbon sequestration estimated through InVEST, carbon price at AUD16.14 per tonne	Fencing plus Managed Retreat	AUD1.7 trillion	AUD1.69 trillion	AUD1.66 trillion	AUD1.62 trillion	AUD1.5 trillion
20	Carbon sequestration estimated through InVEST, carbon price at AUD149 per tonne (i.e., average social cost of carbon between 2040 and 2065)	Fencing plus Managed Retreat	AUD1.7 trillion	AUD1.69 trillion	AUD1.66 trillion	AUD1.62 trillion	AUD1.5 trillion
20	Carbon sequestration estimated through the area approach, carbon price at AUD16.14 per tonne	Fencing plus Managed Retreat	AUD1.7 trillion	AUD1.69 trillion	AUD1.66 trillion	AUD1.62 trillion	AUD1.5 trillion
20	Carbon sequestration estimated through the area approach, carbon price at AUD47 per tonne	Fencing plus Managed Retreat	AUD1.7 trillion	AUD1.69 trillion	AUD1.66 trillion	AUD1.62 trillion	AUD1.5 trillion

20	Carbon sequestration estimated through the area approach, carbon price at AUD149 per tonne (i.e., average social cost of carbon between 2040 and 2065)	Fencing plus Managed Retreat	AUD1.7 trillion	AUD1.69 trillion	AUD1.66 trillion	AUD1.62 trillion	AUD1.5 trillion
50	Carbon sequestration estimated through InVEST, carbon price at AUD16.14 per tonne	Fencing plus Managed Retreat	AUD6.9 trillion	AUD6.8 trillion	AUD6.6 trillion	AUD6.5 trillion	AUD6.2 trillion
50	Carbon sequestration estimated through InVEST, carbon price at AUD149 per tonne (i.e., average social cost of carbon between 2040 and 2065)	Fencing plus Managed Retreat	AUD6.9 trillion	AUD6.8 trillion	AUD6.6 trillion	AUD6.5 trillion	AUD6.2 trillion
50	Carbon sequestration estimated through the area approach, carbon price at AUD16.14 per tonne	Fencing plus Managed Retreat	AUD6.9 trillion	AUD6.8 trillion	AUD6.6 trillion	AUD6.5 trillion	AUD6.2 trillion
50	Carbon sequestration estimated through the area approach, carbon price at AUD47 per tonne	Fencing plus Managed Retreat	AUD6.9 trillion	AUD6.8 trillion	AUD6.6 trillion	AUD6.5 trillion	AUD6.2 trillion
50	Carbon sequestration estimated through the area approach, carbon price at AUD149 per tonne (i.e.,	Fencing plus Managed Retreat	AUD6.9 trillion	AUD6.8 trillion	AUD6.6 trillion	AUD6.5 trillion	AUD6.2 trillion

	average social cost of carbon between 2040 and 2065)						
100	Carbon sequestration estimated through InVEST, carbon price at AUD16.14 per tonne	Fencing plus Managed Retreat	AUD15.5 trillion	AUD15.2 trillion	AUD14.9 trillion	AUD14.6 trillion	AUD13.97 trillion
100	Carbon sequestration estimated through InVEST, carbon price at AUD149 per tonne (i.e., average social cost of carbon between 2040 and 2065)	Fencing plus Managed Retreat	AUD15.5 trillion	AUD15.2 trillion	AUD14.9 trillion	AUD14.6 trillion	AUD13.97 trillion
100	Carbon sequestration estimated through the area approach, carbon price at AUD16.14 per tonne	Fencing plus Managed Retreat	AUD15.5 trillion	AUD15.2 trillion	AUD14.9 trillion	AUD14.6 trillion	AUD13.97 trillion
100	Carbon sequestration estimated through the area approach, carbon price at AUD47 per tonne	Fencing plus Managed Retreat	AUD15.5 trillion	AUD15.2 trillion	AUD14.9 trillion	AUD14.6 trillion	AUD13.97 trillion
100	Carbon sequestration estimated through the area approach, carbon price at AUD149 per tonne (i.e., average social cost of carbon between 2040 and 2065)	Fencing plus Managed Retreat	AUD15.5 trillion	AUD15.2 trillion	AUD14.9 trillion	AUD14.6 trillion	AUD13.97 trillion
20	Carbon sequestration estimated through InVEST,	Levee Removal	AUD35.1 trillion	AUD34.4 trillion	AUD33.7 trillion	AUD33 trillion	AUD31.1 trillion

	carbon price at AUD16.14 per tonne						
20	Carbon sequestration estimated through InVEST, carbon price at AUD119 per tonne (i.e., average social cost of carbon between 2022 and 2047)	Levee Removal	AUD35.1 trillion	AUD34.4 trillion	AUD33.7 trillion	AUD33 trillion	AUD31.5 trillion
20	Carbon sequestration estimated through the area approach, carbon price at AUD16.14 per tonne	Levee Removal	AUD35.1 trillion	AUD34.4 trillion	AUD33.7 trillion	AUD33 trillion	AUD31.5 trillion
20	Carbon sequestration estimated through the area approach, carbon price at AUD47 per tonne	Levee Removal	AUD35.1 trillion	AUD34.4 trillion	AUD33.7 trillion	AUD33 trillion	AUD31.5 trillion
20	Carbon sequestration estimated through the area approach, carbon price at AUD119 per tonne (i.e., average social cost of carbon between 2022 and 2047)	Levee Removal	AUD35.1 trillion	AUD34.4 trillion	AUD33.7 trillion	AUD33 trillion	AUD31.5 trillion
50	Carbon sequestration estimated through InVEST, carbon price at AUD16.14 per tonne	Levee Removal	AUD140.4 trillion	AUD137.6 trillion	AUD134.7 trillion	AUD131.9 trillion	AUD126.2 trillion
50	Carbon sequestration estimated through InVEST, carbon price at AUD119 per	Levee Removal	AUD140.4 trillion	AUD137.6 trillion	AUD134.7 trillion	AUD131.9 trillion	AUD126.2 trillion

	tonne (i.e., average social cost of carbon between 2022 and 2047)						
50	Carbon sequestration estimated through the area approach, carbon price at AUD16.14 per tonne	Levee Removal	AUD140.4 trillion	AUD137.6 trillion	AUD134.7 trillion	AUD131.9 trillion	AUD126.2 trillion
50	Carbon sequestration estimated through the area approach, carbon price at AUD47 per tonne	Levee Removal	AUD140.4 trillion	AUD137.6 trillion	AUD134.7 trillion	AUD131.9 trillion	AUD126.2 trillion
50	Carbon sequestration estimated through the area approach, carbon price at AUD119 per tonne (i.e., average social cost of carbon between 2022 and 2047)	Levee Removal	AUD140.4 trillion	AUD137.6 trillion	AUD134.7 trillion	AUD131.9 trillion	AUD126.2 trillion
100	Carbon sequestration estimated through InVEST, carbon price at AUD16.14 per tonne	Levee Removal	AUD315.9 trillion	AUD309.5 trillion	AUD303.2 trillion	AUD296.8 trillion	AUD284 trillion
100	Carbon sequestration estimated through InVEST, carbon price at AUD119 per tonne (i.e., average social cost of carbon between 2022 and 2047)	Levee Removal	AUD315.9 trillion	AUD309.5 trillion	AUD303.2 trillion	AUD296.8 trillion	AUD284 trillion

100	Carbon sequestration estimated through the area approach, carbon price at AUD16.14 per tonne	Levee Removal	AUD315.9 trillion	AUD309.5 trillion	AUD303.2 trillion	AUD296.8 trillion	AUD284 trillion
100	Carbon sequestration estimated through the area approach, carbon price at AUD47 per tonne	Levee Removal	AUD315.9 trillion	AUD309.5 trillion	AUD303.2 trillion	AUD296.8 trillion	AUD284 trillion
100	Carbon sequestration estimated through the area approach, carbon price at AUD119 per tonne (i.e., average social cost of carbon between 2022 and 2047)	Levee Removal	AUD315.9 trillion	AUD309.5 trillion	AUD303.2 trillion	AUD296.8 trillion	AUD284 trillion
20	Carbon sequestration estimated through InVEST, carbon price at AUD16.14 per tonne	Levee Removal, Fencing	AUD120.4 billion	AUD117.9 billion	AUD115.5 billion	AUD113 billion	AUD108.1 billion
20	Carbon sequestration estimated through InVEST, carbon price at AUDXXX per tonne AUD119 per tonne (i.e., average social cost of carbon between 2022 and 2047)	Levee Removal, Fencing	AUD120.4 billion	AUD118 billion	AUD115.5 billion	AUD113.1 billion	AUD108.1 billion
20	Carbon sequestration estimated through the area approach, carbon price at AUD16.14 per tonne	Levee Removal, Fencing	AUD120.4 billion	AUD117.8 billion	AUD115.5 billion	AUD113 billion	AUD108.1 billion

20	Carbon sequestration estimated through the area approach, carbon price at AUD47 per tonne	Levee Removal, Fencing	AUD120.4 billion	AUD118 billion	AUD115.5 billion	AUD113 billion	AUD108.1 billion
20	Carbon sequestration estimated through the area approach, carbon price at AUD119 per tonne (i.e., average social cost of carbon between 2022 and 2047)	Levee Removal, Fencing	AUD120.4 billion	AUD118 billion	AUD115.5 billion	AUD113 billion	AUD108.1 billion
50	Carbon sequestration estimated through InVEST, carbon price at AUD16.14 per tonne	Levee Removal, Fencing	AUD483.7 billion	AUD473.9 billion	AUD464.1 billion	AUD454.3 billion	AUD434.7 billion
50	Carbon sequestration estimated through InVEST, carbon price at AUD119 per tonne (i.e., average social cost of carbon between 2022 and 2047)	Levee Removal, Fencing	AUD483.7 billion	AUD473.9 billion	AUD464.1 billion	AUD454.3 billion	AUD434.7 billion
50	Carbon sequestration estimated through the area approach, carbon price at AUD16.14 per tonne	Levee Removal, Fencing	AUD483.7 billion	AUD473.9 billion	AUD464.1 billion	AUD454.3 billion	AUD434.7 billion
50	Carbon sequestration estimated through the area approach, carbon price at AUD47 per tonne	Levee Removal, Fencing	AUD483.7 billion	AUD473.9 billion	AUD464.1 billion	AUD454.3 billion	AUD434.7 billion

50	Carbon sequestration estimated through the area approach, carbon price at AUD119 per tonne (i.e., average social cost of carbon between 2022 and 2047)	Levee Removal, Fencing	AUD483.7 billion	AUD473.9 billion	AUD464.1 billion	AUD454.3 billion	AUD434.7 billion
100	Carbon sequestration estimated through InVEST, carbon price at AUD16.14 per tonne	Levee Removal, Fencing	AUD1.09 trillion	AUD1.07 trillion	AUD1.04 trillion	AUD1.02 trillion	AUD979 billion
100	Carbon sequestration estimated through InVEST, carbon price at AUD119 per tonne (i.e., average social cost of carbon between 2022 and 2047)	Levee Removal, Fencing	AUD1.09 trillion	AUD1.07 trillion	AUD1.04 trillion	AUD1.02 trillion	AUD979.1 billion
100	Carbon sequestration estimated through the area approach, carbon price at AUD16.14 per tonne	Levee Removal, Fencing	AUD1.09 trillion	AUD1.07 trillion	AUD1.04 trillion	AUD1.02 trillion	AUD979 billion
100	Carbon sequestration estimated through the area approach, carbon price at AUD47 per tonne	Levee Removal, Fencing	AUD1.09 trillion	AUD1.07 trillion	AUD1.04 trillion	AUD1.02 trillion	AUD979 billion
100	Carbon sequestration estimated through the area approach, carbon price at AUD119 per tonne (i.e.,	Levee Removal, Fencing	AUD1.09 trillion	AUD1.07 trillion	AUD1.04 trillion	AUD1.02 trillion	AUD979.1 billion

	average social cost of carbon between 2022 and 2047)						
20	Carbon sequestration estimated through InVEST, carbon price at AUD16.14 per tonne	Hydrological Intervention	AUD493.3 billion	AUD483.3 billion	AUD473.2 billion	AUD463.1 billion	AUD442.9 billion
20	Carbon sequestration estimated through InVEST, carbon price at AUD119 per tonne (i.e., average social cost of carbon between 2022 and 2047)	Hydrological Intervention	AUD493.4 billion	AUD483.3 billion	AUD473.2 billion	AUD463.1 billion	AUD443 billion
20	Carbon sequestration estimated through the area approach, carbon price at AUD16.14 per tonne	Hydrological Intervention	AUD493.3 billion	AUD483.3 billion	AUD473.2 billion	AUD463.1 billion	AUD442.9 billion
20	Carbon sequestration estimated through the area approach, carbon price at AUD47 per tonne	Hydrological Intervention	AUD493.4 billion	AUD483.3 billion	AUD473.2 billion	AUD463.1 billion	AUD442.9 billion
20	Carbon sequestration estimated through the area approach, carbon price at AUD119 per tonne (i.e., average social cost of carbon between 2022 and 2047)	Hydrological Intervention	AUD493.4 billion	AUD483.3 billion	AUD473.2 billion	AUD463.1 billion	AUD443 billion
50	Carbon sequestration estimated through InVEST,	Hydrological Intervention	AUD2 trillion	AUD1.95 trillion	AUD1.91 trillion	AUD1.87 trillion	AUD1.77 trillion

	carbon price at AUD16.14 per tonne						
50	Carbon sequestration estimated through InVEST, carbon price at AUD119 per tonne (i.e., average social cost of carbon between 2022 and 2047)	Hydrological Intervention	AUD2 trillion	AUD1.95 trillion	AUD1.91 trillion	AUD1.87 trillion	AUD1.79 trillion
50	Carbon sequestration estimated through the area approach, carbon price at AUD16.14 per tonne	Hydrological Intervention	AUD2 trillion	AUD1.95 trillion	AUD1.91 trillion	AUD1.87 trillion	AUD1.79 trillion
50	Carbon sequestration estimated through the area approach, carbon price at AUD47 per tonne	Hydrological Intervention	AUD2 trillion	AUD1.95 trillion	AUD1.91 trillion	AUD1.87 trillion	AUD1.79 trillion
50	Carbon sequestration estimated through the area approach, carbon price at AUD119 per tonne (i.e., average social cost of carbon between 2022 and 2047)	Hydrological Intervention	AUD2 trillion	AUD1.95 trillion	AUD1.91 trillion	AUD1.87 trillion	AUD1.79 trillion
100	Carbon sequestration estimated through InVEST, carbon price at AUD16.14 per tonne	Hydrological Intervention	AUD4.5 trillion	AUD4.4 trillion	AUD4.3 trillion	AUD4.2 trillion	AUD4 trillion
100	Carbon sequestration estimated through InVEST, carbon price at AUD119 per	Hydrological Intervention	AUD4.5 trillion	AUD4.4 trillion	AUD4.3 trillion	AUD4.2 trillion	AUD4 trillion

	tonne (i.e., average social cost of carbon between 2022 and 2047)						
100	Carbon sequestration estimated through the area approach, carbon price at AUD16.14 per tonne	Hydrological Intervention	AUD4.5 trillion	AUD4.4 trillion	AUD4.3 trillion	AUD4.2 trillion	AUD4 trillion
100	Carbon sequestration estimated through the area approach, carbon price at AUD47 per tonne	Hydrological Intervention	AUD4.5 trillion	AUD4.4 trillion	AUD4.3 trillion	AUD4.2 trillion	AUD4 trillion
100	Carbon sequestration estimated through the area approach, carbon price at AUD119 per tonne (i.e., average social cost of carbon between 2022 and 2047)	Hydrological Intervention	AUD4.5 trillion	AUD4.4 trillion	AUD4.3 trillion	AUD4.2 trillion	AUD4 trillion

MAPPING THE BENEFITS AND COSTS OF MANAGEMENT ACTIONS FOR COASTAL WETLANDS IN VICTORIA

Costa MDP, Wartman M, Macreadie PI, Ierodiaconou D, Morris R, Nicholson E, Pomeroy A, Young M, Carnell P. 2022. Mapping the benefits and costs of management actions for coastal wetlands in Victoria. Report submitted to the Department of Environment, Land, Water and Planning. Deakin University, Australia. 55pp.

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