



PORT PHILLIP BAY: ECOSYSTEM ACCOUNTS

Acknowledgement: Victorian government

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Designing a research and practise network for NC and
Environmental Accounting in the pacific

ACES, Brisbane, 27-31 March 2017

PORT PHILLIP BAY

Ecosystem assets

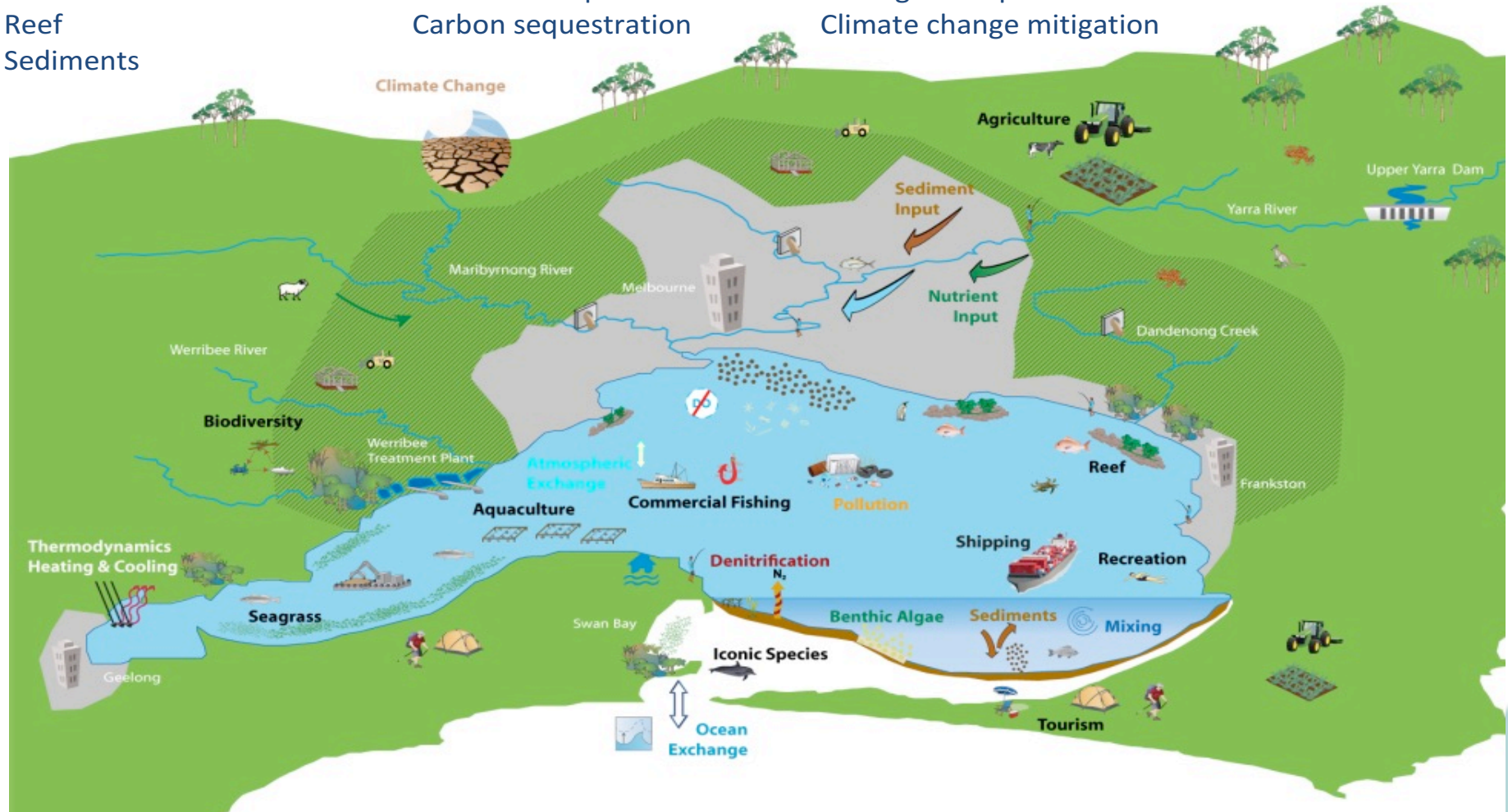
Seagrass
Saltmarsh
Reef
Sediments

Ecosystem services

Denitrification
Habitat and species
Carbon sequestration

Benefits

Recreation and tourism
Fishing and aquaculture
Climate change mitigation



Source: Adapted by DELWP from Environment Protection Authority (2016).

PROJECT AIMS

State of Environment reporting (SEO) – Victoria

- State and benefit framework – based on the SEEA
- Provide a narrative for the SOE

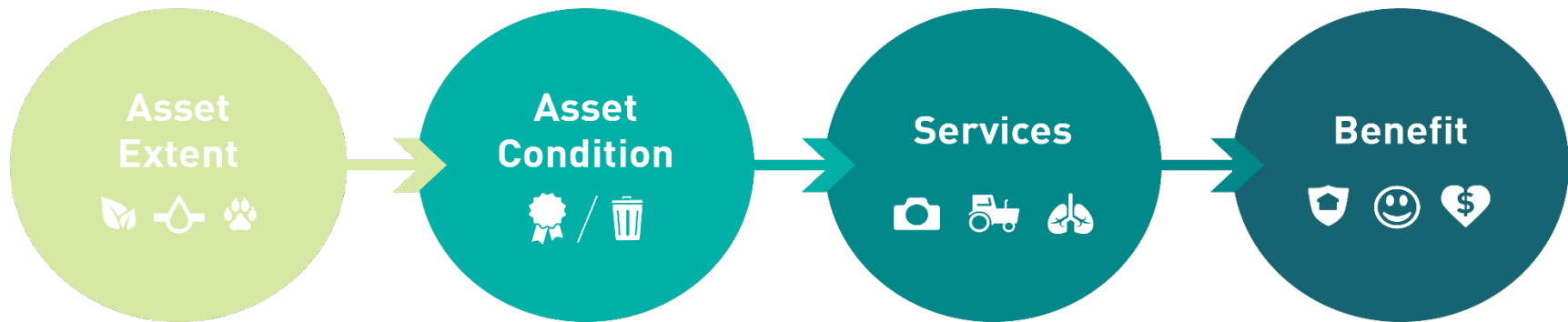
Classification of marine and coastal ecosystem assets

- Deakin University – scientists
- Survey data and mapping

Department of Environment – Victoria

- Policy and decision making
- Bays assets and ecosystem services

CORE ECOSYSTEM ACCOUNTING MODEL



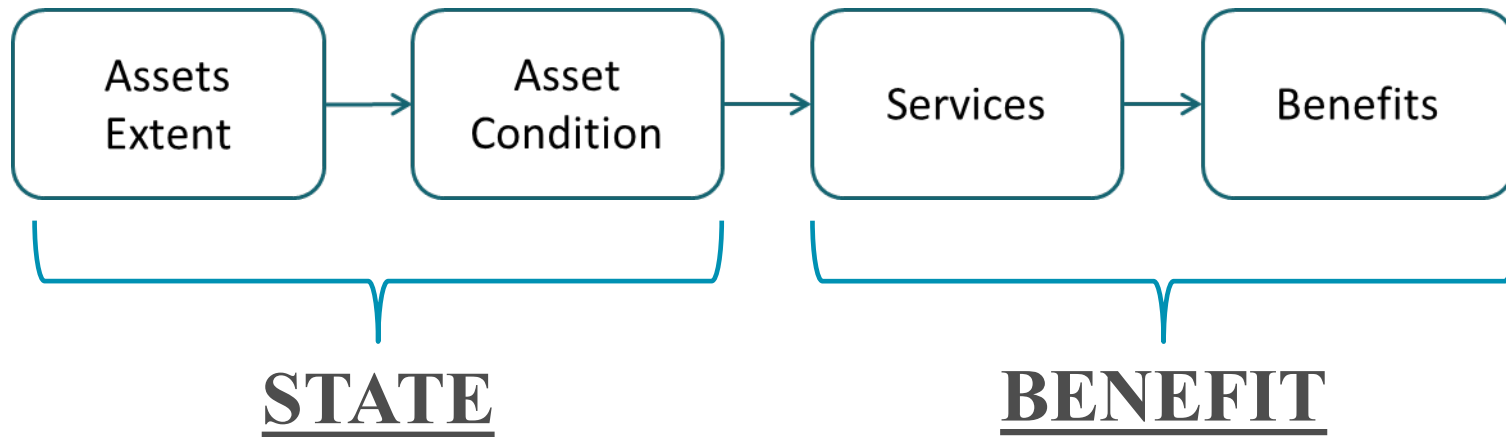
Single asset framework applied to different landscapes and ecosystem types

Assess impact of human activity on asset extent and condition

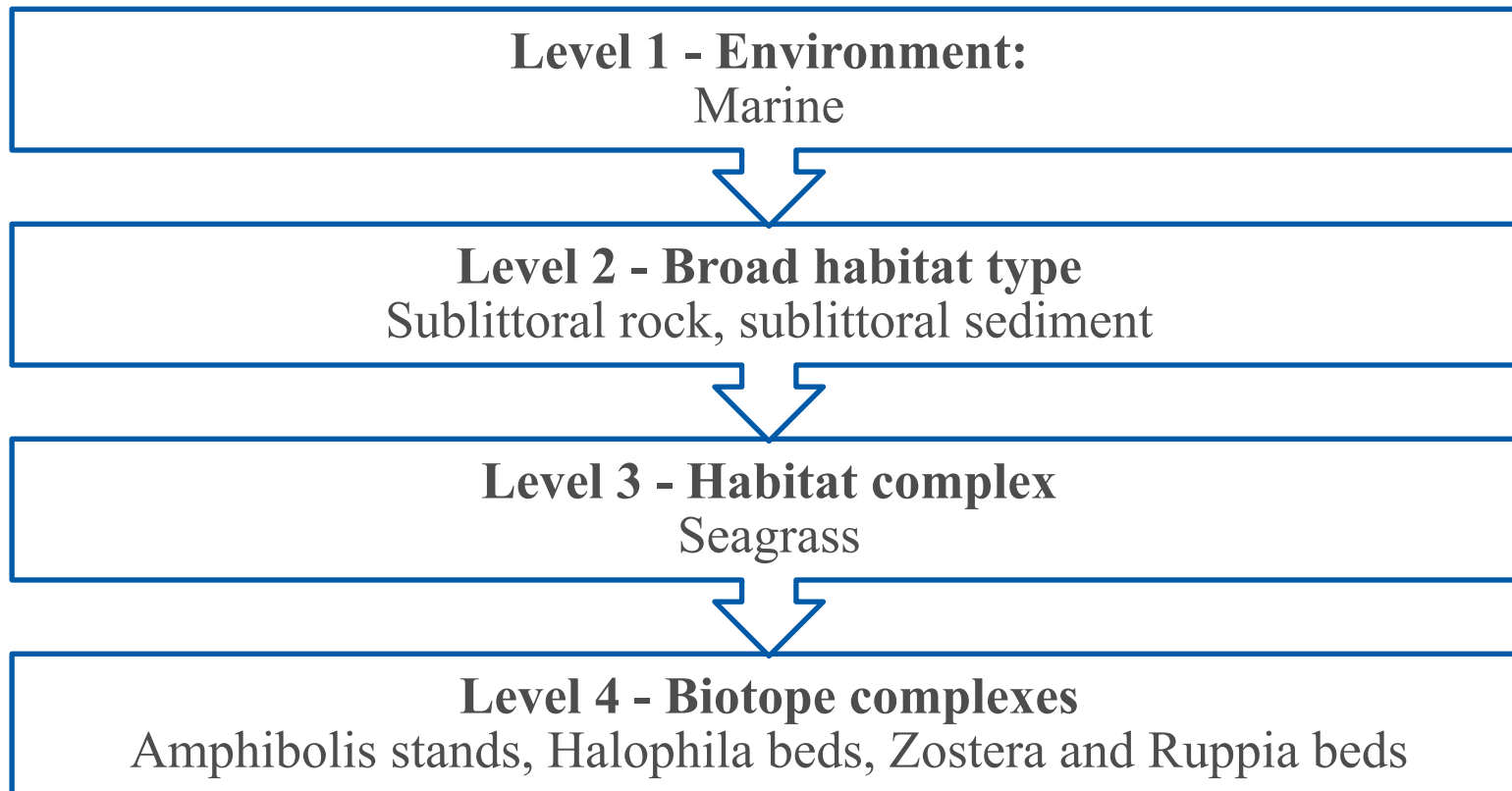
Asset condition influences the production of ecosystem services

Ecosystem services provide economic and social-wellbeing benefits

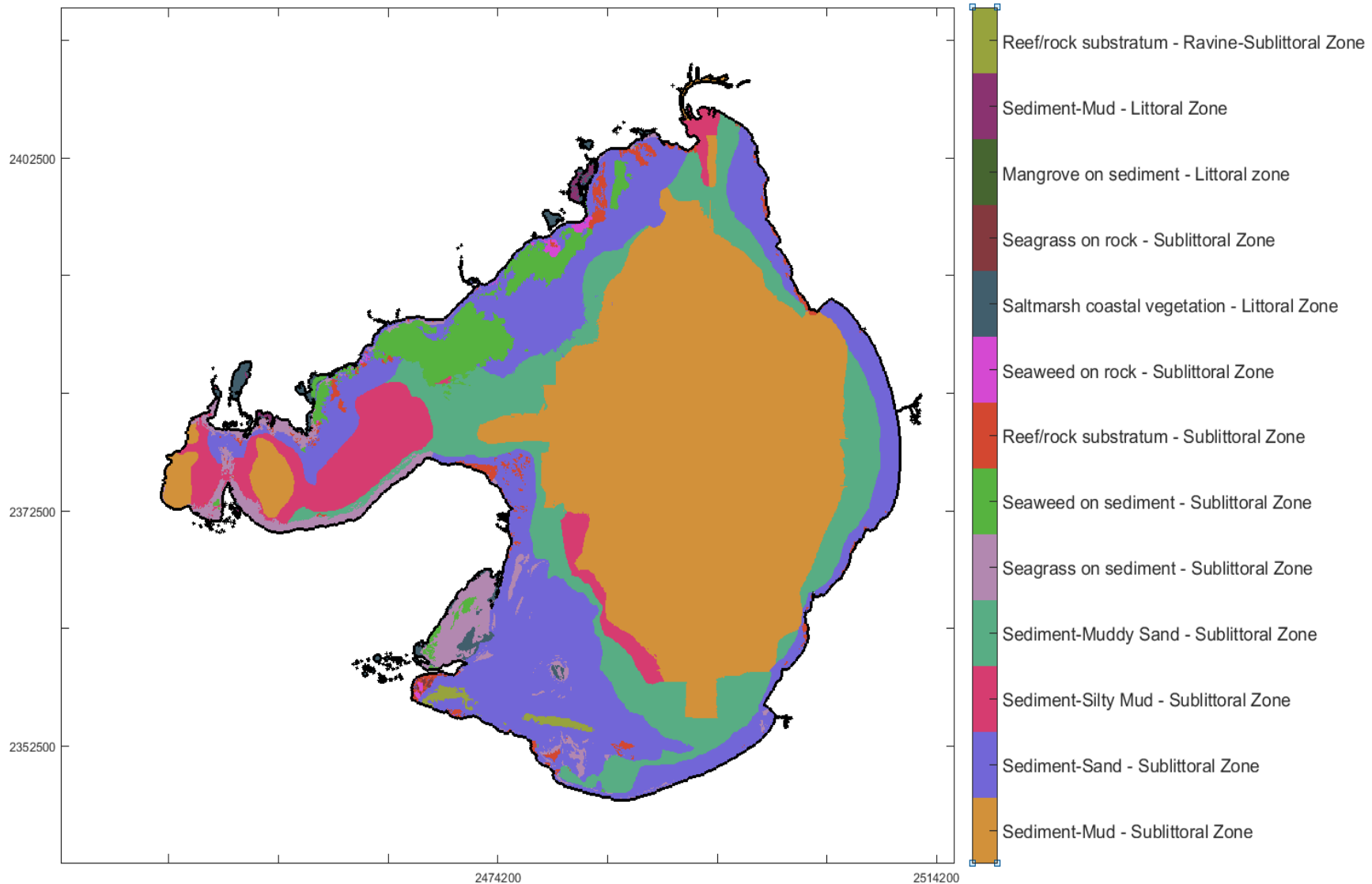
STATE OF THE ENVIRONMENT (SOE)



COMBINED BIOTOPE CLASSIFICATION SCHEME (CBICS)



COMBINED BIOTOPE CLASSIFICATION SCHEME (CBICS)



Source: DELWP EnSym

EXAMPLE ACCOUNTS

Broad habitat	Habitat complex	Central	Corio	Exchange	Hobsons	Inter-tidal	Total
Littoral sediment	Mangrove					4	4
	Mud					274	275
	Saltmarsh coastal vegetation		87	475	5	1,868	2,435
Littoral sediment total			87	475	5	2,147	2,714
Sublittoral rock	Ravine			798		11	809
	Rock (unclassified)	299	471	760	902	48	2,481
	Seagrass			209			209
	Seaweed		298	64	3	5	369
Sublittoral rock total		299	769	1,832	904	63	3,868
Sublittoral sediment	Mud	69,923	3,391	7,393	3,922	234	84,863
	Muddy sand	8,935	5,898	10,656	3,872	8	29,369
	Sand	5,800	11,064	23,458	6,921	312	47,555
	Seagrass	1	3,280	3,524	123	209	7,138
	Seaweed		7,087	352	431	14	7,884
	Silty mud	141	9,737	2,113	905	28	12,925
Sublittoral sediment total		84,800	40,457	47,498	16,175	804	189,734
Total		85,099	41,313	49,804	17,085	3,014	196,315

KEY FINDINGS

Range of ecosystem assets:

- Littoral sediment (mangroves, saltmarsh); sublittoral rock; and sublittoral sediment habitats.
- Further work required.....

Ecosystem Services

- PPB can processes over 5,000 tN pa valued at around \$11 billion pa

Seagrass

- Seagrass stocks make up less than 4% of Port Phillip Bay (approx. 7,350 hectares).
- Carbon sequestration – 6,000 tCO₂-e p.a. valued at \$0.2m p.a. (carbon stored is 0.3 mtCO₂-e, valued at \$3-16m)
- Nursery habitats – increased fish stocks valued at \$6m p.a.



Accounting for ecosystem outcomes

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