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Port Phillip Bay ecosystem accounts and seagrass values

Key words: Port Phillip Bay, Marine Ecosystem Accounts, Seagrass

Abstract:

Department of Environment, Land, Water and Planning (DELWP) recently completed the study '*Marine and Coastal Ecosystem Accounting: Port Phillip Bay*' to inform Victoria's first State of the Bays Report. The objective of the study was to use available habitat information to develop a first set of marine ecosystem accounts and show the relationship between healthy bays and socioeconomic wellbeing. The approach adopted for this study involves the application of the United Nations System of Environmental-Economic Accounting (SEEA) and valuation techniques of selected ecosystem services.

The study provides pilot accounts with a snapshot of the location and extent of four key ecosystem assets in Port Phillip Bay: littoral sediment (e.g. mangrove, saltmarsh); sublittoral rock and sublittoral sediment habitats. The study includes a case study of seagrass habitats to increase understanding about the state and benefits these habitats provide. It shows that while seagrass stocks make up less than four per cent of Port Phillip Bay, they support key ecological functions and deliver ecosystem services that provide significant benefits to people including:

- Carbon sequestration of about 300,000 tonnes of CO₂-e per year, with climate mitigation benefits valued at \$0.2 million per year (carbon stored is worth \$3-16 million)
- Nursery habitats supporting fish spawning and nursery populations, with increased fish stocks valued at a minimum of \$6 million per year
- Supporting services for a number recreational and amenity benefits (e.g. snorkeling, diving) which have not been quantified.

This is the first time marine and coastal environmental-economic accounting has been undertaken in Australia. The findings of the report are preliminary however they provide useful insights into areas for further research. The core accounting model used in this study can be used as a guide to focus future research to improve our understanding of the relationships between the marine and coastal environment and social and economic wellbeing.