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## **A classification framework for mapping ecosystem services in the Peel-Harvey estuary**

**Key words:** Ecosystem Processes, Final Ecosystem Services, Ecosystem Service Models

### **Abstract:**

The science, definitions and classifications of ecosystem services (ES) has evolved in recent decades. While the proposed frameworks contributed to our understanding of the 'Ecosystem Approach, their application remains limited by data availability and is situation-dependent. This paper reviews the increasing ES conceptual frameworks following the Millennium Ecosystem Assessment (MEA) framework first introduced in 2005. The challenge arising from the ambiguity in the use of definitions and key terms is addressed which recognizes the approaches taken by various authors to overcome this confusion. As the application of an Ecosystem Approach is context dependent, the present paper uses the Peel-Harvey Estuary as a case study. The analysis comprehensively lists estuarine ecosystem structures, processes, and functions and the societal benefits emanating from these; it focuses on key estuarine intermediate and final ES, which are dependent on the perception of the identified beneficiaries. The study makes an important distinction between the units of measurement used for different estuarine ecosystem components and ecosystem processes. This contributes to our means of quantifying ecosystem services in estuarine environments, and the role these services play in delivering societal goods and benefits. Where it is not possible to identify measurable attributes of estuarine processes leading to key ES, proxy indicators have been identified and their employment within the selected ES Framework justified. Identifying the underlying ecosystem components and processes, and verifying their clear linkages to local ES, assists in assessing ES and makes it possible to track the status of benefits received by the society. The study concludes with the types of already available data and modeling software required to map ES.