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A journey through changing coastal zone management in temperate Western Australia – A look at some unique ecology of its estuaries and nearshore coastal embayments and management approaches

Coastal and estuarine management in Western Australia (WA) have gone through remarkable changes over the last 40 years. This talk will journey through some descriptions of local biology and ecology of key biota and current environmental conditions in some coastal regions. It will outline changes in paradigms influencing understanding, briefly discuss hysteresis, cascades, multiple stability points and cumulative impact thresholds that describe coastal ecosystem degradation and recovery and will discuss a range of engineering and policy management approaches that have been used to address coastal management. Brief mention of some megatrends affecting coastal management and ecosystem health will be made, and lastly, how cultural-political-human constraints and opportunities have influenced success-failures of WA coastal management. Recent research and monitoring initiatives have complimented and improved original understanding of WA's benthic and coastal processes carried out by multi-disciplinary investigations of nutrient enriched estuaries and coastal embayments e.g. Cockburn Sound and Peel-Harvey Estuary. Recent approaches by WA Marine Science Institute have explored and mapped coastal habitats, Leeuwin Current eddies and nektonic migration-production with more recent studies on effects of dredging and understanding the Kimberley coast in northwest WA. All have immensely improved coastal understanding. WA has moved from default large and small-scale engineering interventions constructing cuts-channels between the ocean and eutrophic waterbodies (e.g. Dawesville Channel, Moore River), although this still happens, to management based more on community and policy defined ecosystem values and objectives. Appreciation of biogeochemical processes and environmental drivers have changed with improved understanding of the role of climate change, e.g. sea level rise, warmer sea temperatures. It could be argued the State is still grappling with issues over environmental risk and conflict created by the "cake-and-eat-it-too" syndrome and community-political apathy. Case studies from Cockburn Sound in southern metropolitan Perth and the Peel-Harvey will help highlight this journey.

Biography

Thomas H Rose has over 25 years' experience working on migratory fish, trophics, eutrophication, estuarine ecology and developing and managing estuarine and coastal restoration and environmental management programs. He has extensive experience in environmental impact assessments, monitoring and analysis, working with stakeholders, community, researchers and industry and has worked with Government to better understand environmental risk, undertake partnerships to help improve coastal land use and impacts on coastal resources. He has worked on multiple use coastal environments and has been an advocate of adaptive approaches to issues and solutions and more clever use of decision support systems to help transition to more sustainable coastal zone economies.

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