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Observing Hypersalinity in an East Australian Subtropical Estuary

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In this presentation, observations from five hydrographic surveys are discussed that document the physical state of Hervey Bay, a subtropical bay off the south Queensland coast, Australia. The Bay covers an area of about 4000 km2 with a mean depth of about 15 m. The surveys were conducted during the period September 2004 to July 2008. A total of 270 CTD profiles were recorded. The local climatological freshwater balance favours the maintenance of hypersalinity which is aided by a slow renewal of water within the bay. Utilising simple salt balance models and historical data it is demonstrated that hypersalinity is likely to dominate throughout the year and is a climatological feature of this estuary. It is not limited to the dry season of the year, although significant rainfall events associated with storms can rapidly erode inverse conditions for short periods. Persistent drought conditions are likely to have prolonged periods of hypersalinity during recent decades.