

Muara Harbour, Brunei

The Ministry of Development/Public Works Department of Brunei retained the local firms TECA and SPECS sendirian berhad to design improvements to Muara Harbour. Coastal Science & Engineering (CSE) served as a principal consultant to TECA/SPECS for purposes of analyzing flows, sediments, and sediment transport along the entrance channel from Serasa spit to the harbor. This is the primary commercial harbor serving Brunei Bay. Channel deepening for harbor expansion was a primary goal of the project.

CSE mobilized a field team and equipment to Brunei and performed the following measurements over a three-week period:



- In-situ current velocity time-series measurements via acoustic profiler (SONTEK™ ADP) at four locations within the harbor
- Synoptic current velocity measurements at numerous stations via Marsh-McBirney electromagnetic flowmeter
- Synoptic salinity measurements (numerous profiles) to determine the degree of stratification of fresh and salt water
- Suspended-sediment sampling (direct collection via bottle samplers) and indirect measurements (via acoustic profiling techniques)
- Bottom sediment sampling and laboratory testing in country
- Spot measurements of bathymetry to define flow cross-sections for discharge measurements

CSE's measurements were used to define the principal harbor circulation and sediment transport pathways. Dominant flow direction and net residual flows were identified for four primary locations within the harbor. Stratification of flows and suspended sediment was identified to aid the designers in the layout of new harbor facilities.

Client: Ministry of Development – Brunei
Public Works Department, Darussalam Brunei (c/o TECA / SPECS sendirian berhad)

