

KAUAI CHANNEL CURRENTS

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ABSTRACT

The currents in and around the Kauai Channel, in the northwestern part of the Hawaiian Islands, were investigated during the period from August 1965 through November 1966. Direct current measurements were made by a Savonius current meter, by means of a moored paddle wheel current meter and by observation of the drift of parachute drogue buoys. Four hydrographic cruises were conducted. The results were correlated with the winds and tides, but a seasonal variation is not apparent in this investigation. In the center of the Kauai Channel there is a prevailing westerly set, but the currents are weak and reverse with the tides. The westerly flow divides upon reaching the coast of Kauai and part flows south of the Island with the other part flowing north of the Island. Currents nearshore reverse with the tides, except that only rarely do they do so southeast of Kauai, where the flow is strong to the southwest, or north of Kauai where the flow nearshore tends to be easterly. Large eddies north and south of the Islands and in the Channel itself control the circulation

and may appear and disappear and have opposite direction of rotation. These eddies mask the prevailing flow. No conditions were found where the currents appeared to respond in a simple way to local winds.