

**MATERIAL TRANSPORT AND BIOGEOCHEMICAL PROCESSES IN
SAWI BAY, SOUTHERN THAILAND**

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ABSTRACT

Steady-state box model computations, using salt as a conservative tracer, were applied to estimate net fluxes of N and P in Sawi Bay and its major tributaries—the K. Chumphon and K. Sawi River estuaries. The multiple-box model clearly shows that most nutrients are trapped in the estuarine section of the system, however a significant portion of nutrients is exported to the Gulf of Thailand. In general, the export fluxes are higher during the wet season than in the dry season. The export flux of DIN, normally dominated by NH_4 , is less than the export flux of DON while DIP is exported at a much greater rate than that of DOP. Sawi Bay waters appear to be in balance metabolically (p-r=0) in the dry season, suggesting very high efficiency in recycling organic material; however, in the wet season, the bay is net heterotrophic. The K. Chumphon estuary is a net denitrifying system while K. Sawi estuary and Sawi Bay are net nitrifying.