



# HISAS 4

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## **FLOW PATTERN AND POLLUTANT DISTRIBUTION IN BENOA BAY, BALI ISLAND: A NUMERICAL MODEL EXPERIMENT**

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**ABSTRACT:** The three-dimensional coupled hydrodynamic-transport model was applied in order to analyze the water circulation and its impact to pollutant distribution in Benoa Bay with and without the causeway of Benoa Harbor. The model results show that the pollutant has been mixed well in the whole layer by tidal current. The fate of pollutant produced by Badung River in case with the causeway is tend pent-up in the inner part of the bay, meanwhile the case without the causeway is tend to be distributed in the whole waters. The other sources of pollutant in north-coast of the bay tend to flush outside the model region. Furthermore, the existence of the harbor with its causeway has reduced natural ability of the bay in water flushing.

**KEYWORDS:** Coupled hydrodynamic-transport model, Benoa Bay, Benoa Harbor, pollutant distribution.