Supattra Srijew 2013: Assessment of Fecal Contamination using Fecal Sterol Compounds in Canals around Rattanakosin Island and Flooded Area. Master of Engineering (Environmental Engineering), Major Field: Environmental Engineering, Department of Environmental Engineering. Thesis Advisor: Associate Professor Wilai Chiemchaisri, D.Tech.Sc. 135 pages.

Fecal contamination in the canals around Rattanakosin Island (Ong-ang and Bang Lumpoo canals) had been evaluated over a year period during June 2011 to May 2012, based on the selected sterol compounds for tracking fecal sources. Several factors, including season, water level of the canals, monthly rainfall data and discharged sewage which possibly affected the fecal contamination, were investigated in this study. Besides, fecal sterol contaminated in flood water over some parts of Nonthaburi and PathumThani provinces during October-November 2011 were also examined. It was found that the maximum of averaged fecal sterol contents in the sediments of the canals were $12.478 \mu g cholesterol \cdot g^{-1}$, $10.782 \mu g cholestanol \cdot g^{-1}$ and $16.903 \mu g coprostanol \cdot g^{-1}$ which indicates high fecal pollution both from human and warm-blooded animal sources. The canals' water level and rainfall magnitude had significantly influenced changes in fecal sterol contents. Besides, the highest concentrations of all fecal sterol compounds, $8.321 \mu g cholesterol \cdot L^{-1}$, $6.490 \mu g \ coprostanol \cdot L^{-1}$ and $1.205 \mu g cholestanol \cdot L^{-1}$ of discharged sewages were found at SamataAmonmak canal. During flood period in 2011, the highest cholesterol and coprostanol contents of $11.604 \mu g \cdot L^{-1}$ and $2.221 \mu g \cdot L^{-1}$ were found in flood water over Nonthaburi and Pathumthani provinces respectively, which indicates higher fecal contamination from human/warm-blood animals as compared to those of surface water as reported in previous studies.

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